#11847608072 Id: 88064839

BLM Library
D-553A, Building 50
Denver Federal Center
P. O. Box 25047
Denver, CO 80225-0047

TN
859
.C64
R564
no. 2
Sect. 2.4
1975

QUARTERLY REPORT
OCTOBER 1974-JANUARY 1975
FOR
RIO BLANCO OIL SHALE PROJECT
AQUATIC BASELINE STUDIES

Vol. 1

SUBMITTED TO
LIMNETICS, INCORPORATED
DENVER, COLORADO

SUBMITTED BY

ECOLOGICAL SCIENCES DIVISION

NUS CORPORATION
PITTSBURGH, PENNSYLVANIA
HOUSTON, TEXAS
AND
DENVER, COLORADO

MARCH, 1975

PREPARED BY _____
THOMAS M. IVORY
PROJECT MANAGER

APPROVED BY _____
PAUL V. MORGAN
VICE PRESIDENT
ECOLOGICAL SCIENCES

Denver, CO 80203-0063
P. O. Box 18063
Denver Public Library
Denver, CO 80218-0063

PREFACE

On September 9, 1974, NUS Corporation was selected by the Rio Blanco Oil Shale Project (RBOSP) and Limnetics, Incorporated, to perform the Aquatic Baseline Data Accumulation Program for Oil Shale Tract C-a. On October 15 the initial aquatic sampling was begun; sampling continued through November 13. Between December 2, 1974, and January 16, 1975, a second aquatic sampling was completed. This quarterly report contains data from both of these sampling periods (all data from the initial sampling and a large portion of that from the second). The primary intent of this report is to present the data collected and analyzed to date and, therefore, little data interpretation has been attempted in the report.

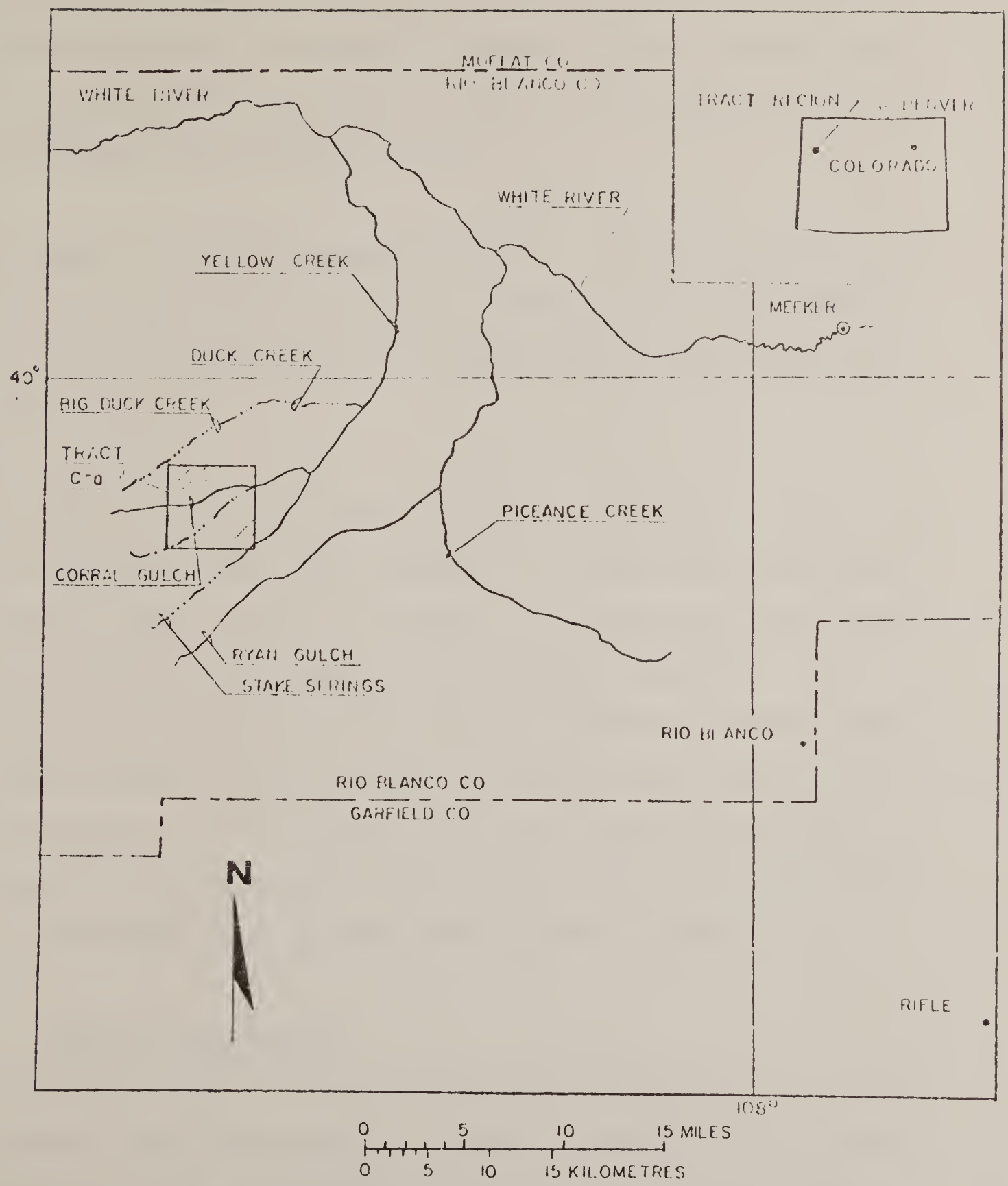
2.4 AQUATIC STUDIES

2.4.0. Introduction, review of literature and summary

The Site

Colorado Oil Shale Tract C-a is located in western Colorado approximately 27 miles southwest of the town of Meeker. The tract, encompassing 5,090 acres, lies on the western flank of the Piceance Creek Basin, about five miles east of the Cathedral Bluffs. Figure 1 depicts the general region in which the tract is located.

The topography of Tract C-a includes a series of northeast trending canyons and ridges. The slopes of the canyon walls are steep, the valley floors are narrow, and the ridges are broad and rounded. The altitude of areas within the tract ranges from 6,600 feet in Corral Gulch near the northeast corner to about 7,400 feet on the ridges near the southwestern part of the tract. The principal drainages on and near the tract are Corral, Water, and Box Elder Gulches and Dry Fork which flow into Yellow Creek. Southeast of the tract, the major drainage is Stake Springs Draw, while north of the tract the nearest principal drainage is Big Duck Creek. The general direction of flow of all these drainages is to the northeast. The majority of these streams are intermittent and therefore flow during the period of spring runoff and occassionally following local heavy rains. Yellow Creek, which receives



RBOSP - AQUATIC BASELINE STUDY

REGIONAL MAP

FIGURE 1

all surface runoff from the tract, has a drainage area of 258 square miles, according to Wymore (1974). Yellow Creek is intermittent near Tract C-a but is free-flowing near its confluence with the White River.

Although no long-term precipitation or stream flow data exist for the tract area and vicinity, precipitation is estimated at 10 to 18 inches annually. About half of this occurs as snow.

The White River, the largest river in this region, arises on a 10,000 to 12,000 foot plateau in the White River National Forest, east of Meeker, Colorado. The North and South Forks of the White River converge near Buford, Colorado. The White River then flows in a westerly direction through ranch lands to Utah, where it joins the Green River. The U. S. Department of the Interior (1973) has indicated that the region of the White River between its head waters and Buford is considered to be a high quality trout stream.

Program Objectives

The Aquatic Baseline Data Accumulation Program is designed to perform those environmental studies described in the Federal Register, Volume 39, Number 230, Part 3, Oil Shale Lease Environmental Stipulations and in the Tract C-a Exploratory Plan of May 1974.

The overall objective for the Aquatic Baseline Data Accumulation Program is to characterize the existing aquatic ecological communities in the vicinity of Tract C-a. These studies will inventory the aquatic habitats which may be affected by the development of oil shale on and about Tract C-a. Species composition, productivity, importance to man, and the relative uniqueness of these habitats will be determined. The baseline study includes the collection and analysis of field data and an on-going survey of pertinent literature. Since most of the streams on and near Tract C-a are intermittent, and since most of the permanent aquatic ecosystems occur off the tract, emphasis is given to characterizing those permanent systems. Included as objectives in the Aquatic Baseline Program are the following:

1. Habitat types will be surveyed to provide a basis for measuring changes due to water flow and water quality.

2. The presence and abundance of aquatic macrophyte communities will be determined when appropriate. Random transects will be used along stream banks, species composition will be determined, and estimates of percent area covered will be made.

3. Although plankton is not normally an important part of the food chain in high altitude lentic habitats, if it is found, its abundance and composition will be measured by random samples.

4. The abundance and species composition of periphyton will be assessed by sampling a known area of rock or by measuring growth on artificial substrates. Because periphyton are attached to the substrate, it is more important in lotic systems than

plankton and may show a population change from an effluent discharge point. The biomass per unit area, an index of its importance in primary production in the systems, will be determined.

5. Data for use in calculating species diversity indices and assessing stress conditions relating to benthos will be collected. Classically, benthos may be expected to be the main source of transfer of energy from periphyton and detritus to fish populations in the streams.

6. Field studies of fish, the highest level consumers in this aquatic habitat, will determine species composition; relative importance of each species to its community; identification of species which are likely to be the most sensitive to changes in physical or chemical conditions of their environment, productivity of the community; existence of rare or endangered species; and species of economic, aesthetic or recreational value to man.

No detailed studies of the aquatic ecosystems of Tract C-a have been made prior to the present baseline study. However, studies of similar habitats indicate that the composition and abundance of the aquatic flora and fauna are determined by the permanency or intermittency of flow of the streams.

Because the streams located on the tract are mostly intermittent, a major emphasis of the aquatic baseline studies is to characterize the aquatic biota of the permanently flowing waters located off the tract. These permanently flowing waters include the White River near its confluence with Yellow Creek and Yellow Creek itself.

References - Introduction

U.S. Department of the Interior. 1973. Final environmental statement for the prototype oil shale leasing program. Vol. I, Regional impacts of oil shale development.

Wymore, I. F. 1974. Estimated average annual water balance for Piceance and Yellow Creek watersheds. Tech. Rept. Series No. 2. Env. Res. Center, Colo. State Univ., Ft. Collins, Colo. 60 pp.

2.4.0. Review of the literature

A. Physical and Chemical Characteristics

Preliminary review of literature pertaining to the physical and chemical characteristics of the streams included in the present study reveals little information for bodies of water on and near Tract C-a. The U.S. Geological Survey has recently established gaging stations on and near the tract; these stations will provide valuable data for inclusion in future aquatic reports.

The USGS has been monitoring the water quality of the White River near Watson, Utah, for several years. Although the Utah reaches of the White River may differ somewhat in quality from those included in the Aquatic Baseline Data Accumulation Program, the water quality data derived from them (USGS 1971, 1972, 1973) will serve as a basis of comparison with data currently being collected.

For the water year from October 1970 to September 1971 the ranges of concentration of constituents in the White River near Watson, Utah, were as follows:

pH	7.4 to 8.1
Specific conductance (µmhos/cm	384 to 817
Hardness (mg/l)	170 to 310
Dissolved Solids (mg/l)	376 to 550
Orthophosphorus, dissolved (mg/l)	0.01 to 0.05
Calcium (mg/l)	42 to 82
Magnesium (mg/l)	13 to 26
Sodium (mg/l)	18 to 68
Sulfate (mg/l)	61 to 200
Chloride (mg/l)	8 to 65

During the water year from October 1971 to September 1972, the ranges of constituents were as follows:

pH	7.7 to 8.3
Specific conductance (umhos/cm)	328 to 891
Hardness (mg/l)	140 to 340
Dissolved solids (mg/l)	227 to 553
Orthophosphorus, dissolved (mg/l)	0.00 to 0.03
Calcium (mg/l)	38 to 100
Magnesium (mg/l)	11 to 28
Sodium (mg/l)	14 to 88
Sulfate (mg/l)	52 to 200
Chloride (mg/l)	8 to 83
Silica, dissolved (mg/l)	11 to 16
Alkalinity (mg/l)	108 to 205
Fluoride, dissolved (mg/l)	0.2 to 0.3

During the water year from October 1972 to September 1973, the concentrations of the constituents varied as follows:

pH	7.1 to 8.3
Specific Conductance (umhos/cm)	358 to 1160
Hardness (mg/l)	110 to 330
Dissolved solids (mg/l)	206 to 674
Orthophosphorus, dissolved (mg/l)	0.00 to 0.08
Calcium (mg/l)	26 to 77
Magnesium (mg/l)	11 to 34
Sodium (mg/l)	20 to 150
Sulfate (mg/l)	51 to 260
Chloride (mg/l)	11 to 140
Silica, dissolved (mg/l)	11 to 19
Alkalinity (mg/l)	121 to 258
Fluoride, dissolved (mg/l)	0.3 to 0.5

Everhart and May (1973) included three sampling locations on the White River during their studies between September 1968 and December 1969. Two of their stations (VII and VIII) were in the general vicinity of Stations 27 - 29 and 30 of the present

study. Their Station VII was located on the White River, above (east of) its confluence with Yellow Creek, while Station VIII was downstream (west) of its confluence with Yellow Creek. At Station VII, Everhart and May report the following ranges of concentrations:

pH	7.7 to 8.4
Specific conductance (μmhos/cm)	450 to 750
Dissolved oxygen (mg/l)	6.2 to 12.3
Filterable (dissolved) solids (mg/l)	210 to 475
Calcium (mg/l)	40.8 to 80.4
Magnesium (mg/l)	9.6 to 26.4
Sodium (mg/l)	5.0 to 118.2
Chloride (mg/l)	4.8 to 22.0
Silica (mg/l)	12.0 to 27.0
Alkalinity (mg/l)	154 to 344
Nitrate (mg/l)	0.1 to 1.6

At Station VIII the ranges of concentrations were:

pH	7.8 to 8.4
Specific conductance (μmhos/cm)	485 to 800
Dissolved oxygen (mg/l)	5.6 to 11.8
Filterable (dissolved) solids	209 to 572
Calcium (mg/l)	36.4 to 90.1
Magnesium (mg/l)	9.7 to 28.9
Sodium (mg/l)	3.9 to 101.4
Chloride (mg/l)	5.3 to 25.0
Silica (mg/l)	13.0 to 23.5
Alkalinity (mg/l)	70 to 240
Nitrate (mg/l)	0.2 to 6.7

The Colorado Department of Health (1974) has classified the main stem of the White River (from the mouth of Piceance Creek to the Colorado-Utah state line) as Class B_2. Such waters are suitable or may become suitable for all purposes except primary contact recreation, such as swimming and water

skiing. This classification includes the least stringent standards of water quality of all classifications, indicating that the waters of the main stem of the White River are of lesser quality than those of its upper reaches (which are classified as B_1).

B. Phytoplankton and Zooplankton

The initial review of the literature indicates that few, if any, data have been obtained regarding the plankton communities of the streams on and near Tract C-a or of those of Yellow Creek and the White River. In general, because planktonic organisms play a relatively minor role in flowing waters, studies of planktonic communities in small streams and rivers have been few in number; this is particularly true of Colorado streams. This preliminary review of the literature includes both general references and, where possible, references to studies of Colorado waters.

Eddy (1967), in his study of the plankton of the Sangamon River in Illinois, postulated that the development of plankton in the Sangamon River depended upon local conditions, with better development occurring in slower-moving pool areas.

Prescott (1968) suggested that the phytoplankton of streams varies with the chemical condition of the water, temperature, and the amount of suspended matter. Prescott stated that

plankton in rapidly flowing, spring-fed streams (particularly near the headwaters) is virtually non-existent. Prescott further suggested that the phytoplankton found in the lower reaches of a stream included: species which originate in lakes, swamps, and marshes in the headwaters, are transient, and do not complete their life histories; species normally occurring in streams which do complete their life histories; and those species (particularly diatoms) which are forced to enter the stream, can adjust to stream conditions, and can multiply in transit.

Pennak (1943) found that few phytoplankton species occurred in Boulder Creek near Boulder, Colorado. He reported that the diatoms were always the dominant plankters. He found both truly planktonic forms such as Asterionella, Melosira, and and Synedra, and sessile species of Navicula, Stauroneis, Diatoma, and Gomphonema. Pennak suggested that the phytoplankton maximum observed between April and August was due to greater growth during the warmer months and the fact that spring runoff washed away substantial numbers of attached forms.

Hynes (1970) indicated that headwater streams contain representatives of the benthic algae, primarily diatoms, which have been washed away from the stream bed. In addition, some

streams may contain truly planktonic algae (such as Asterionella, Fragilaria, and Melosira) which presumably stray from other bodies of water draining into the streams. Hynes has suggested that, generally, the quantity of plankton increases as one proceeds downstream. However, this is dependent upon local conditions, since the area encompassed by pools and riffles varies greatly from stream to stream (and the production of phytoplankton is greater in the pool areas). Hynes also stated that phytoplankton is always more abundant in rivers than is zooplankton and that the diatoms are nearly always the dominant group of phytoplankton. According to Hynes, phytoplankton occurrence and abundance also varies with the season (warmer waters encourage maximum phytoplankton development) and on the incidence of spates (floods).

Shortly after the turn of the century, Beardsley (1902a, b) published the first species lists for Protozoa and Entomostraca found in Colorado. However, these lists were based predominantly on studies of the eastern slope and the plains areas of eastern Colorado. Additional early contributions to literature concerning the zooplankton fauna of Colorado include those of Marsh (1911) and Dodds (1915), both of which dealt with the occurrence of crustacean species in Colorado.

Since those very early studies, zooplankton studies in Colorado have seemingly extended along two lines of research:

the first, the distribution of Entomostraca as related to increasing altitude; and the second, the seasonal dynamics of various lakes and/or reservoirs in the state as part of broader limnological studies.

The first altitudinal study was that of Dodds (1919). He categorized Colorado Entomostraca as: those confined to the plains, those limited to the mountains, and those that are found at all elevations. He also surmised that, of the species generally found in the mountains, a few were typical of arctic and subarctic regions and the remainder were generally confined to the Rocky Mountain region of the U.S. Reed and Olive (1958) reported similar findings concerning the relationship of entomostracan distribution and altitude. They also updated the species list for Copepoda and Cladocera occurring in Colorado. Patalas (1964), in his studies of the altitudinal distribution of crustacean plankton communities in northern Colorado, added several previously unreported species to the list of Colorado zooplankton.

One of the earliest ecological studies of Colorado zooplankton is that of Pennak (1944) in which he described the diurnal movements of zooplankton in some Colorado mountain lakes. Pennak continued such studies with subsequent descriptions of the annual cycles of Protozoa, Rotifera and Crus-

tacea of Colorado reservoirs (1949) and mountain lakes (1955a). Other Colorado zooplankton studies include those of Pennak (1955 b), Quinn (1962), and Keefer (1969). An additional study, as reported by Pennak (1966), describes the littoral vs. limnetic affinities of Colorado Crustacea and Rotifera. Studies have also extended into the seasonal faunal changes of alpine ponds (Neldner and Pennak 1955, Schmitz 1959).

Although numerous studies have been reported concerning the benthic communities of Colorado streams, little information is available concerning the zooplankton fauna of this habitat. Brinley (1950) gave an account of the plankton populations of some streams in the Rocky Mountain National Park. Zooplankton densities were extremely low, as were the number of species reported. He reported finding only the Protozoa Loxodes, Actinosphaerium sol, and Cyclidium and the rotifer Noteua.

Pennak (1943) conducted a comprehensive study on Boulder Creek, a stream originating in the mountain area of northern Colorado. A significant feature of the Boulder Creek zooplankton was its great variability in both numbers and composition. Rotifers encountered, in order of decreasing frequency, included Keratella quadrata (greatest abundance in November), Brachionus calyciflorus (June and July), Polyarthra

trigla (December), and occurring only rarely were Keratella cochlearis, Synchaeta sp. and Monostyla lunaris. Crustacea collected included Cyclops bicuspidatus, Bosmina, and Daphnia. Pennak also noted that the few Centropyxis spp. and small dipteran larvae which occurred in the plankton had been dislodged from the stream bed by the current.

Many studies on the zooplankton of the lotic environment have been reported outside of Colorado. Some of these, including those of Wiebe (1927) and Lackey (1938), have dealt mainly with the relationship between zooplankton and pollution. Other authors have largely dealt with the nature of river zooplankton, its sources, and the factors controlling its presence in the stream environment.

Kofoid (1908), in his classic study of the plankton of the Illinois River system, reported that most of the plankton in the river had originated in the lakes and backwaters associated with it, and that none of the plankters were characteristic of the river itself. Beach (1960) concluded that lakes and artificial impoundments of the Ocqueoc River system in Michigan were the major locations of rotifer development. Most of the plankton originating in the lakes decreased in quantity downstream from the lakes, and eventually disappeared. The rate of this removal was related to length of

stream, current, depth of water, turbulence, and amount of vegetation or other objects in the channel. Chandler (1937) observed that lake plankton entering a stream undergoes a quantitative decrease as it passes downstream and that this decrease is related to aquatic vegetation, to debris, and possibly to sedimentation in areas of low velocity.

Eddy (1934) suggests that the important factors influencing the development of plankton in streams are age of water (distance from source ÷ velocity), temperature, and turbidity. He further stressed that waters of high turbidity (carrying large amounts of suspended silt) develop little plankton. Williams (1966), in a survey of rotifers in the major rivers of the United States, noted the abundance of rotifers was low in several rivers; this was probably a result of their intolerance to turbulence and silt. He noted that in most streams heavy silt loads are associated with increased stream flow. (At two of his stations silt conditions were associated with extremely low rotifer populations. These stations were located in Yuma, Arizona and Loma, Colorado, both on the Colorado River). Williams also concluded that high densities of rotifers are generally associated with water of high clarity and little turbulence.

Heavy silt loads also decrease the abundance of Crustacea. Because they are non-selective feeders, and because they feed on suspended materials, many crustacean zooplankton may, in turbulent water, inadvertently ingest sand, etc. which causes them to settle out of the water column (Hynes 1970).

Pennak (1943), in his study of a mountain stream, found little evidence that the zooplankton which he collected originated in lakes near the stream. He therefore speculated that this zooplankton originated mainly from small populations inhabitating the deeper quiet pools of the stream. He also suggested that the friction between the organisms and the stream bed and/or suspended particles caused the destruction of large numbers of the plankton.

All the papers discussed to this point have dealt with large streams, ranging in size from Boulder Creek to the Illinois River. Information regarding the zooplankton of smaller streams is important since the present study area includes numerous springs and small streams. The influence of the arid climate of western Colorado must also be considered.

Clifford (1972a, b) published the results of a year long study of the drift invertebrates of two small streams in Alberta. In one study (1972a), an intermittent stream draining a marshy area

exhibited significantly greater numbers of organisms in the drift during the daytime. Drifting organisms included nematodes, harpacticoids, simuliid larvae, chironomid larvae, chydorids and rotifers. The second study (1972b) was that of a brown-water stream also fed by a marshy terrain. In his second study, Clifford (1972b) observed that Cladocera, Copepoda and Ostracoda made up a large part of the drift, both in terms of number of organisms and in terms of biomass.

Gray (1952) reported on the Protozoa of Hobson's Brook in Great Britain. Results of this study indicated that ciliates were not present in the headwater springs but did occur in small pools near those headwaters; that the greatest number and variety of ciliates occurred in the current core; that the greatest variety of species of ciliates and the greatest abundance were associated with green or blue-green algal communities; that species of ciliates of the stream and of the adjacent fields were the same; that recruitment from the fields and banks occurred after rains and during dry periods as a result of clods falling into the stream; and that a noted fall in ciliate numbers in the summer was correlated with an enormous increase in the number of microphagous larvae (mainly Diptera).

Gray (1953) also studied the rotifer populations of Hobson's Brook. Two bdelloid rotifers, Rotifer vulgaris and Philodina,

occurred in both the stream and in the adjacent fields. Gray stated that it is well known that certain bdelloids can resist desiccation. He found that the food supply of rotifers was probably the most dynamic factor in their ecology and that in Hobson's Brook this food supply consisted largely of diatoms.

Hynes (1958) published an account of the effect of drought on the fauna of a small mountain stream in Wales. Following 10 weeks of drought, a return of water resulted in an almost immediate appearance of ostracods, Cyclops, Canthocamptus (a harpacticoid), and Chydorus sphaericus. He suggested that some of these organisms may have persisted in the moist gravel beneath the stream bed.

Borutskii (1964) stated that both the young and adults of some harpacticoids can withstand brief periods of drought in moist soil without encysting. Harpacticoids, however, are also known to be able to encyst in the adult stage during unfavorable conditions (Cole 1953, Smyly 1957) but are not necessarily able to withstand desiccation. Cole (1968) stated that the sexual eggs of many forms such as Cladocera, Ostracoda, Anostraca, and Calanoida are able to survive long arid periods and that this enables such forms to persist as inhabitants of temporary water bodies in arid areas. He continued that cyclopoid copepods are not represented by many species

in the temporary waters of arid regions, even though several may undergo resting stages as copepodids. Few cyclopoids are thought to be able to resist desiccation, one noted exception being Metacyclops minutus, which was observed to survive nine months desiccation as an encysted copepodid before emerging (Rzoska 1961). Similar adaptations may be exhibited by zooplankton organisms occurring on or near Tract C-a.

C. Periphyton

No literature specific to the Yellow Creek Drainage is available; however, available literature on similar streams elsewhere in the United States is being collected and will be included in later reports.

D. Benthos

Ecological investigations of aquatic macrobenthos from the State of Colorado are somewhat limited. Dodds and Hisaw (1924, 1925) published classical information on the adaptations of aquatic insects in the orders Trichoptera and Ephemeroptera and on the distributions of organisms in Colorado Rockies. Pennak and Van Gerpen (1947) correlated bottom fauna production in a northern Colorado trout stream with consideration of the substrates.

Recent publications include the investigation of Elgmark and Saether (1970) and Saether (1970). Elgmark and Saether dis-

cuss the distribution of invertebrates in a high mountain brook in the Colorado Rocky Mountains. Saether (1970), in his study of North Boulder Creek, Colorado, emphasizes the Chironomidae, but includes some information on other invertebrates. While such articles are of value, they are of limited use in the particular area of the present study. Dr. A. R. Gaufin and others at the University of Utah have done substantial work in investigating the Order Plecoptera in Colorado. A recent publication by Stark et al. (1973) presents known distributional records of this order for the state. The literature review of the above publication presents citations of earlier investigators on this order of insects.

The publication most pertinent to the present investigation is that of Everhart and May (1973), who discuss the biota and chemistry of Piceance Creek. Piceance Creek is in Piceance Basin which has four major drainages: the White River, Piceance Creek, Yellow Creek and Douglass Creek Drainages. Tract C-a is in the Yellow Creek Drainage. While the major portion of the report concerns the chemical and physical parameters of Piceance Creek Drainage and its biota, qualitative lists of macrobenthos in Yellow Creek and the White River are also presented. These lists compare favorably, with few exceptions, to results of the present study.

Everhart and May (1973) concluded from their study that during periods of high discharge, filterable solids and chemical constituents were diluted and during periods of low discharge, chemicals, such as calcium, were concentrated. They found that silica values had no apparent systematic seasonal variation. Abundance of food, water temperature, stream discharge, and seasonal emergence patterns were listed as possible reasons for seasonal variation in the abundance of insects. Stream discharge was emphasized, as this factor to a great extent determines substrate type.

E. Sediment Chemistry

The literature was reviewed to identify levels of sediment chemicals observed in other rivers and streams to form a basis for comparison and evaluation of levels observed on and near Tract C-a. Related literature is also indicated under the Toxicology Section of this report.

Konrad (1972) presents the results of a survey of sediment mercury in twenty-seven rivers and streams in Wisconsin. Sample locations were chosen to identify natural background mercury levels to the extent possible and to identify levels in areas subject to industrial and municipal waste discharges. Mercury levels were positively correlated with organic matter and clay content of the sediments. Natural background levels ranged from <0.01 to 0.05 μg/g in sandy sediments and

from 0.05-0.15 µg/g in organic and clayey sediments. Mean levels in waste-discharge-affected areas were 0.4 to 684 µg/g. Mercury levels in fish captured in these contaminated areas ranged from 0.11 to 1.24 µg/g.

Derryberry (1972) investigated mercury levels in the Tennessee River Valley. Mercury levels of about 0.2 to 3.5 µg/g were observed in sediments of the Tennessee River. Levels of 0.02 to 32 µg/g were observed in Holston River sediments. Levels observed in fish were 0.3 to 3.5 µg/g and 0.6 to 4.5 µg/g in the Tennessee River and Holston River, respectively.

Bender et al. (1972) surveyed heavy metal contamination in sediments and biota of several Virginia Rivers. In areas concluded not to be influenced by man, sediment mercury levels ranged from 0.5 to 2.5 µg/g. Mercury levels in fish, eels, oysters, and lobsters in these areas ranged from near zero to 0.22 µg/g, well below the 0.50 µg/g limit set by the U.S. Food and Drug Administration (Bender et al. 1972). Sediments from the Elizabeth River, which is seriously affected by industrial pollution, contained mercury levels ranging from 0.5 to 3.0 µg/g, lead levels of 10 to 500 µg/g and zinc levels of 100 to 300 µg/g.

Angino et al. (1974) studied metals in suspended sediments in Kansas streams. Their data indicate mean lead levels of 0.01 to 0.03 ug/g and zinc levels generally less than detectable levels. No significant correlation between metals concentrations in sediment and water was observed.

F. Macrophytes

No literature specific to the site is available. General works which contain information pertinent to the macrophytes of Colorado include those of Harrington (1964) and the U.S. Department of the Interior (1973).

G. Fish

Little site-specific literature on fish exists. Most of the fish research and sampling efforts have been directed at upstream areas of the White River, including Trapper's Lake, in the White River National Forest. This area supports a high-value cold water fishery (U.S. Dept. of Interior 1973).

One site-specific study is that of Everhart and May (1973). Their study was chiefly directed at macroinvertebrate and fish populations of Piceance Creek, but several stations were established in the White River near the site of the present study. Sampling was done by electrofishing, and a species occurrence list was presented.

Studies of other areas contain limited data pertinent to species found at the site and will be referred to in later sections, where applicable

H. Hydrology

The United States Geological Survey (USGS) has monitored the discharge of the White River in the vicinity of Meeker, Colorado, since 1909. The following data were collected at the USGS gaging station below Meeker since October 1968. These data should provide some general indication of the variations in discharge which would occur in the White River near its confluence with Yellow Creek.

USGS discharge data for the White River is as follows:

Water Year: October 1968 - September 1969
Maximum Mean Discharge: 1959 cfs (May)
Minimum Mean Discharge: 315 cfs (February)

Water Year: October 1969 - September 1970
Maximum Mean Discharge: 2283 cfs (June)
Minimum Mean Discharge: 338 cfs (February)

Water Year: October 1970 - September 1971
Maximum Mean Discharge: 2171 cfs (June)
Minimum Mean Discharge: 345 cfs (February)

Water Year: October 1971 - September 1972
Maximum Mean Discharge: 1738 cfs (June)
Minimum Mean Discharge: 322 cfs (August)

I. Toxicology

Water quality and sediment chemistry parameters are included in the Tract C-a Baseline Studies to allow before-and-after

development comparison of these components of the aquatic ecosystem. In addition, these data will be evaluated to indicate the presence of potentially toxic materials. Toxicology evaluations will be based on a literature review of toxicity to aquatic biota and the cycling of toxic substances (heavy metals and pesticides) in ecosystems.

The cycling of toxic materials in ecosystems will be considered in a descriptive manner in future reports. Basic cycling mechanisms are discussed in Whitaker (1970), Nelson (1971), Hartung and Dinman (1972), and Edwards (1973). These references will be supplemented with other available literature to identify possible sources of toxicity to various ecosystem components.

General toxicology literature is quite extensive. Much of the available information is summarized by McKee and Wolf (1963), FWPCA (1968), and National Academies of Sciences and Engineering (1972). These references will be supplemented by other literature sources and will form the foundation of toxicology evaluations. These evaluations will be largely qualitative, since toxic levels cannot be strictly defined because of synergistic and antagonistic interations which are not yet well understood.

References - Review of Literature

Angino, E. E., L. M. Magnuson, and T. C. Waugh. 1974. Mineralogy of suspended sediment and concentration of Fe, Mn, Ni, Zn, Cu, and Pb in water and Fe, Mn, Pb in suspended load of selected Kansas streams. Water Resources Research Vol. 10. No. 6. December, 1974.

Beach, N. W. 1960. A study of the planktonic rotifers of the Ocqueoc River system, Presque Isle County, Michigan. Ecol. Monogr. 30:339-357.

Beardsley, A. E. 1902a. Notes on Colorado Protozoa. Trans. Amer. Microsc. Soc. 23:49-59.

Beardsley, A. E. 1902b. Notes on Colorado Entomostraca. Trans. Amer. Microsc. Soc. 23:41-48.

Bender, M. E., R. J. Huggett, and H. D. Slone. 1972. Heavy metals-an inventory of existing conditions. J. Wash. Acad. of Sci. Vol. 62, No. 2.

Borutskii, E. V. 1964. Fauna of U.S.S.R., Crustacea. Freshwater Cyclopoda. Israel Program for Scientific Translations. Vol. III, No. 4.

Brinley, F. J. 1950. Plankton populations of certain lakes and streams in the Rocky Mountain National Park, Colorado. Ohio J. Sci. 50:243-250.

Chandler, D. C. 1937. Fate of typical lake plankton in streams. Ecol. Monogr. 7:445-479.

Clifford, H. F. 1972a. Drift of invertebrates in an intermittent stream draining marshy terrain of west-central Alberta. Can. J. Zool. 50:985-991.

Clifford, H. F. 1972b. A year's study of the drifting organisms in a brown-water stream of Alberta, Canada. Can. J. Zool. 50:975-983.

Cole, G. A. 1953. Notes on copepod encystment. Ecology 34:208-211.

Cole, G. A. 1968. Desert limnology. Chapter IX In: Brown, G. W. (ed.) Desert Biology. Academic Press, New York.

Colorado Department of Health. 1974. Water quality standards and stream classification. Water Qual. Contr. Comm., Colo. Dept. Health.

Derryberry, O. M. 1972. Investigation of mercury contamination in the Tennessee Valley region In: Hartung, R. and B. D. Dinman, (ed.) Environmental Mercury Contamination. Ann Arbor Science Publishers, Inc.

Dodds, G. S. 1915. Descriptions of two new species of Entomostraca from Colorado, with notes on other species. Proc. U.S. Nat. Mus. 49:97-102.

Dodds, G. S. 1919. Altitudinal distribution of Entomostraca in Colorado. Proc. U.S. Nat. Mus. 54:59-87.

Dodds, G. S. and F. L. Hisaw. 1924. Ecological studies on aquatic insects. I. Adaption of mayfly nymphs to swift streams. Ecology 5:137-150.

Dodds, G. S. and F. L. Hisaw. 1925. Ecological studies on aquatic insects. III. Adaptions of caddisfly larvae to swift streams. Ecology 6:123-137.

Eddy, S. 1934. A study of fresh-water plankton communities. Ill. Biol. Monogr. 12:6-90.

Eddy, S. 1967. The plankton of the Sangamon River in the summer of 1929. pp. 31-60. In: L. E. Keup, W. M. Ingram and K. M. Mackenthun (eds.). Biology of Water Pollution. FWPCA.

Edwards, C. A. 1973. Environmental pollution by pesticides. Plenum Press, London and New York.

Elgmark, D. and O. R. Saether. 1970. Distribution of invertebrates in a high mountain brook in the Colorado Rocky Mountains. Univ. Colo. Ser. Biol. 31:3-55.

Everhart, W. H., and B. E. May. 1973. Effects of chemical variations in aquatic environments. Vol. 1: biota and chemistry of Piceance Creek. U.S. Environmental Protection Agency, Office of Research and Monitoring, Washington, D.C.

FWPCA. 1968. Report of the Committee on Water Quality Criteria. Federal Water Pollution Control Administration, U.S. Dept. Int., reprint by USEPA, Washington, D.C.

Gray, E. 1952. The ecology of the ciliate fauna of Hobson's Brook, a Cambridgeshire chalk stream. J. Gen. Microbiol. 6:108-122.

Gray, E. 1953. The ecology of rotifers in Cambridgeshire. J. Anim. Ecol. 22:208-216.

Harrington, H. D. 1964. Manual of the plants of Colorado. Sage Books. The Swallow Press, Inc., Chicago. 666 pp.

Hartung, R. and B. D. Dinman. 1972. Environmental mecury contamination. Ann Arbor Science Publishers, Inc., Ann Arbor, Michigan.

Hynes, H. B. N. 1958. The effect of drought on the fauna of a small mountain stream in Wales. Verh. internat. Verein Limnol. 13:826-833.

Hynes, H. B. N. 1970. The ecology of running waters. Univ. Toronto Press, Toronto, Ont. 555 pp.

Keefer, V. M. 1969. Seasonal changes in plankton and seston production in a Colorado mountain lake. Ph.D. Dissertation. Univ. of Colorado, Boulder, Colo. 84 pp.

Kofoid, C. A. 1908. The plankton of the Illinois River, 1894-1899. Part II. Constituent organisms and their seasonal distribution. Bull. Ill. St. Lab. Nat. Hist. 8:2-360.

Konrad, J. G. 1972. Mercury contents of bottom sediments from Wisconsin rivers and lakes. In: Hartung, R. and B. D. Dinman, ed., Environmental mercury contamination. Ann Arbor Science Publishers, Inc.

Lackey, J. B. 1938. Protozoan plankton as indicators of pollution in a flowing stream. Public Health Rep. 53: 2037-2058.

Marsh, C. D. 1911. On a new species of Diaptomus from Colorado. Trans. Wisc. Acad. Sci. 17:197-199.

McKee, J. E. and H. W. Wolf. 1963. Water quality criteria. Calif. State Water Res. Cont. Bd. Publ. 3-A. 548 pp.

National Academies of Science and Engineering. 1972. Water quality criteria 1972. USGPO, Washington, D.C.

Neldner, K. H. and R. W. Pennak. 1955. Seasonal faunal variations in a Colorado alpine pond. Amer. Midl. Nat. 53:419-430.

Nelson, D. J.,(ed.) 1971. Radionuclides in ecosystems. Proceedings of the Third National Symposium on Radioecology. Oak Ridge, Tennessee. USAEC and the Ecological Society of America.

Patalas, K. 1964. The crustacean plankton communities in 52 lakes of different altitudinal zones of northern Colorado. Verh. internat. Verein Limnol. 15:719-726.

Pennak, R. W. 1943. Limnological variables in a Colorado mountain stream. Amer. Midl. Nat. 29:186-199.

Pennak, R. W. 1944. Diurnal movements of zooplankton organisms in some Colorado mountain lakes. Ecology 25: 387-403.

Pennak, R. W. 1949. Annual limnological cycles in some Colorado reservoir lakes. Ecol. Monogr. 19:234-267.

Pennak, R. W. 1955a. Comparative limnology of eight Colorado mountain lakes. Univ. Colo. Studies, Ser. Biol. 2:1-75.

Pennak, R. W. 1955b. Persistent changes in the dominant species composition of limnetic entomostracan populations in a Colorado mountain lake. Trans. Amer. Microsc. Soc. 74:116-118.

Pennak, R. W. 1966. Structure of zooplankton populations in the littoral macrophyte zone of some Colorado lakes. Trans. Amer. Microsc. Soc. 85:329-349.

Pennak, R. W. and E. D. Van Gerpen. 1947. Bottom fauna production and physical nature of the substrate in a northern Colorado trout stream. Ecology 28:42-48.

Prescott, G. W. 1968. The algae: a review. Houghton Mifflin Co., Boston, Mass. 436 pp.

Quinn, B. G. 1962. Seasonal plankton studies on a Colorado mountain flowage. Ph.D. Dissertation. Univ. of Colorado, Boulder, Colo. 89 pp.

Reed, E. B. and J. R. Olive. 1958. Altitudinal distribution of some Entomostraca in Colorado. Ecology 39:66-74.

Rzoska, J. 1961. Observations on tropical rainpools and general remarks on temporary waters. Hydrobiolia 17: 265-286.

Saether, O. R. 1970. Chironomids and other invertebrates from North Boulder Creek, Colorado. Univ. Colo. Ser. Biol. 31:59-114.

Schmitz, E. H. 1959. Seasonal biotic events in two Colorado alpine tundra ponds. Amer. Midl. Nat. 61: 424-446.

Smyly, W. J. P. 1957. Observations on the life-history of the harpacticoid copepod, Canthocamptus staphylinus (Jurine). Ann. Mag. Nat. Hist. 10:509-512.

Stark, B. P., B. R. Oblad and A. R. Gaufin. 1973. An annotated list of the stoneflies (Plecoptera) of Colorado. Part I. & II. Ent. News 84:269-277; 301-305.

U.S. Department of the Interior. 1973. Final environmental impact statement for the prototype oil shale leasing program, Vol. I.

USGS. 1970. Water resources data for Colorado. Part I. Surface water records. U.S. Geological Survey. U.S. Dept. Int.

USGS. 1971. Water resources data for Colorado. Part I. Surface water records. U.S. Geological Survey, U.S. Dept. Int.

USGS. 1972. Water resources data for Colorado. Part I. Surface water records. U.S. Geological Survey, U.S. Dept. Int.

USGS. 1973. Water resources data for Colorado. Part I. Surface water records. U.S. Geological Survey, U.S. Dept. Int.

Whitaker, R. H. 1970. Communities and ecosystems. The Macmillan Company, London.

Wiebe, A. H. 1927. Biological survey of the upper Mississippi River, with special reference to pollution. Bull. Bur. Fish., Wash. 43:137-167.

Williams, L. G. 1966. Dominant planktonic rotifers of major waterways of the United States. Limnol. Oceanogr. 11:83-91.

2.4.0. Summary

During the October - November 1974 sampling period, samples were collected at a total of 27 locations. During the December 1974 - January 1975 period, samples were collected at a total of 24 locations. At certain sampling locations, as indicated in Appendices A-1-1 and A-1-2, physical conditions (dry or frozen streams or deep snow accumulations) hampered or prevented sample collection. In the following paragraphs, the presentation of results obtained during those two periods of collection is limited to preliminary description of the data. In the case of physical and chemical parameters, the ranges of concentration of only certain selected parameters are presented in the text. Because of the brief period covered in this report and the preliminary nature of much of the data, no formal interpretations of the data have been attempted.

For convenience and ease of discussion, the sampling stations will be treated according to their geographical locations in the following manner: stations near the headwater areas (Stations 1 - 5); stations on Tract C-a (Stations 6 - 18); stations on Yellow Creek (Stations 19 - 22); and stations on the White River (Stations 23 - 35).

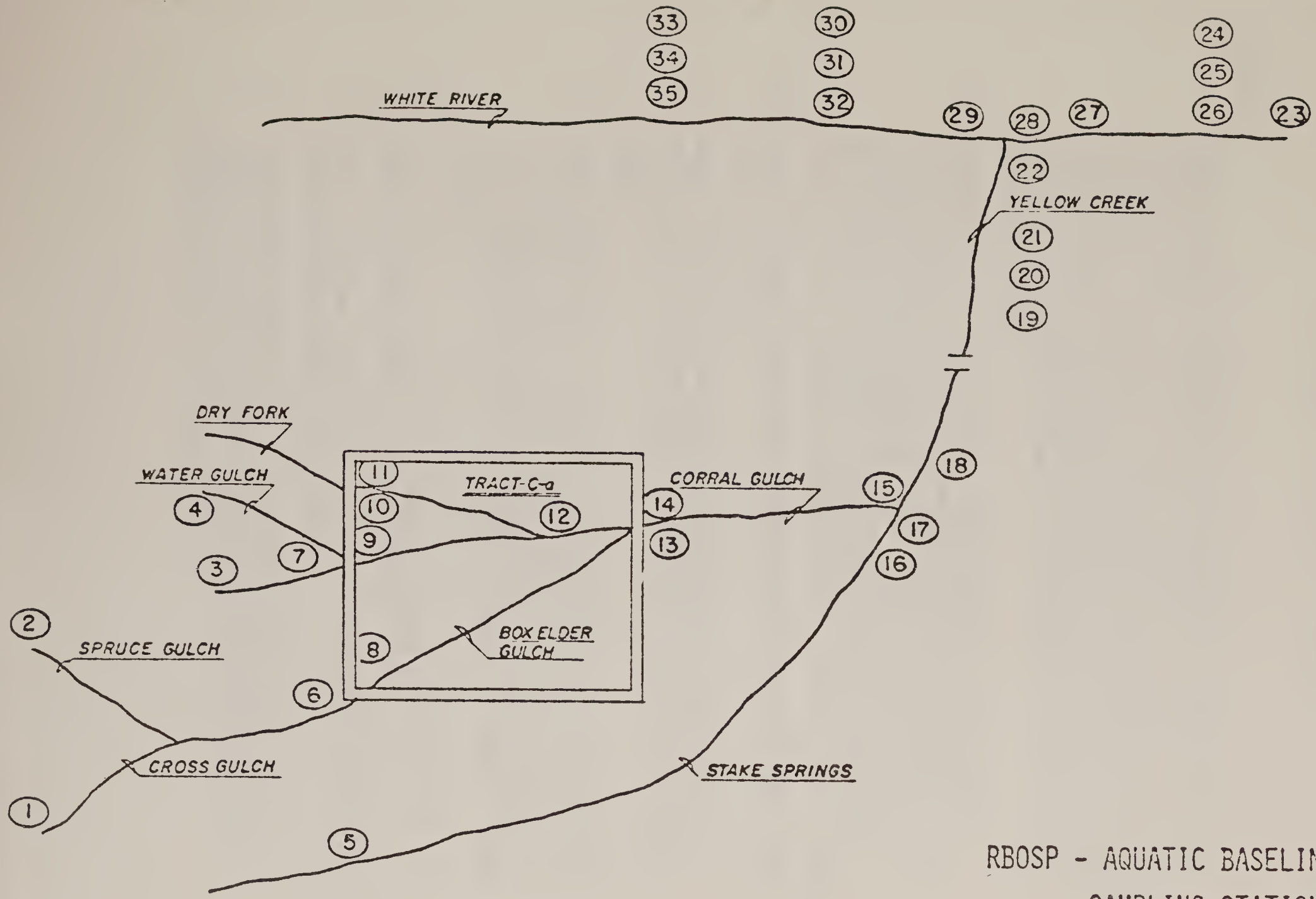
2.4.1. Physical Measurements and Water Chemistry

2.4.1.1. Objectives

In order to fulfill the objectives established for the Aquatic Baseline Data Accumulation Program, sampling stations have been selected to represent the broadest possible range of aquatic habitats available. A total of 35 sampling stations have been established. Emphasis in this aquatic program has been placed on the permanent streams, Yellow Creek and the White River, where 18 stations have been located. The locations of aquatic sampling stations are depicted in Figure 2 and described in Table 1 (p.). The stations are generally grouped as follows: Headwater stations (1 - 5); Tract Stations (6 - 18); Yellow Creek stations (19 - 22) and White River stations (23 - 35).

Schedule

The schedule of events for the Aquatic Baseline Data Accumulation Program is presented in Table 2 (p.). The initial sampling was begun in October 1974; sampling will continue through August 1976. Appendix A-1-1 (p.) lists the dates on which sampling occurred during the initial sampling period. At each station, all physical, chemical and biological samples are taken on the same day. Appendix A-1-2 lists the dates on which sampling occurred during the December 1974 - January 1975 sampling period. Objectives discussed in this section and in the introduction apply to all segments of the Aquatic Program; therefore, these will not be repeated under each section.



RBOSP - AQUATIC BASELINE STUDY
SAMPLING STATIONS

FIGURE 2

2.4.34

TABLE 1

LOCATION OF SAMPLING STATIONS

Station

1 - Cross Gulch Headwaters approximately 3200 meters (2 miles) above the confluence with Spruce Gulch; this is the lowest of the three springs in the area. This station is located at the highest elevation of all the stations. All of the seepages in the vicinity of this station have been tapped for use in livestock watering. Nearby Aspen trees appear to contribute a substantial amount of organic matter in the form of dead leaves to the seepages.

2 - Spruce Gulch Headwaters approximately 1500 meters (1 mile) above its confluence with Cross Gulch. This station is located approximately 50 meters downstream from the seepage area. The spring at the headwaters of Spruce Gulch appears to be a sulfur spring since the odor H_2S is very evident and the bottom of the stream appears to be covered with fungus.

3 - Corral Gulch Headwaters approximately 50 meters from Maverick Spring.

4 - Water Gulch Headwaters approximately 1500 meters (1 mile above the confluence with Corral Gulch. This station is located about 50 meters below the seepage area.

5 - Headwaters Area of Stake Springs Draw. This station is located in a marshy area approximately 8 kilometers (5 miles) above the confluence with Corral Gulch. This headwaters area consists of a series of seeps which form a marshy area with extensive aquatic vegetation.

6 - This site is the USGS gaging station on Box Elder Gulch, just after it enters Tract C-a.

7 - This station is located at the USGS gaging station on Corral Gulch near Water Gulch.

8 - Box Elder Gulch (just after entering Tract C-a) approximately 1200 meters (0.8 mile) below the USGS gaging station. This station is located about 50 meters below the seepage area.

TABLE 1 (Continued)

Station

9 - Corral Gulch just after its confluence with Water Gulch. This station is located approximately 200 meters below the confluence. This station is located on a small swift stream which has a gravel substrate.

10 - This station is located at the USGS gaging station on Dry Fork just as it enters Tract C-a.

11 - Dry Fork just after entering Tract C-a. This station is located about 50 meters below the USGS gaging station on Dry Fork.

12 - Corral Gulch just after confluence with Dry Fork Gulch. This station is located about 50 meters below the confluence.

13 - This station is the USGS gaging station on Corral Gulch just as it leaves Tract C-a.

14 - Corral Gulch just after leaving Tract C-a. This station is located at a pond approximately 1200 meters (0.8 mile) above 84 Ranch. Station 14 is located on a small pond which contains extensive mats of the aquatic plant, Zannichellia palustris.

15 - Corral Gulch approximately 100 meters upstream from its confluence with Stake Springs Draw.

16 - This station is located at the USGS gaging station on Stake Springs Draw.

17 - Stake Springs Draw approximately 100 meters upstream of its confluence with Corral Gulch.

18 - Yellow Creek approximately 100 meters downstream from the confluence of Corral Gulch and Stake Springs Draw.

19 - Yellow Creek between the confluences of Duck Creek with Yellow Creek and Barcus Creek with Yellow Creek. This station is located at a pool which is choked with Chara kieneri.

20 - Yellow Creek at the USGS gaging station near the White River.

TABLE [1] (Continued)

Station

21 - Yellow Creek 100 meters above its confluence with the White River.

22 - Yellow Creek 15 meters upstream from its confluence with the White River.

23 - This station is located in a side channel of the White River about 800 meters (0.5 mile) above its confluence with Yellow Creek.

24,25,26 - White River approximately 260 meters above the confluence of the White River with Yellow Creek. These stations are situated on a transect line which is perpendicular to the stream. Station 24 is located near the North shore of the White River; Station 25 is located in mid-stream; and Station 26 is located near the South shore

27,28,29 - These stations are located in the side channel area at the confluence of the White River and Yellow Creek. Station 27 is situated about 30 meters above the confluence, Station 28 at the confluence, and Station 29 about 30 meters below the confluence.

30,31,32 - These stations are located on the White River about 500 meters downstream from the confluence with Yellow Creek. Station 30 is located near the North shore of the White River; Station 31 is located in mid-stream; and Station 32 is located near the South shore.

33,34,35 - These stations were placed on the White River about 2500 meters (1.5 miles) downstream from the confluence with Yellow Creek. Station 33 is located near the North shore of the White River; Station 34 is located in mid-stream; and Station 35 is located near the South shore.

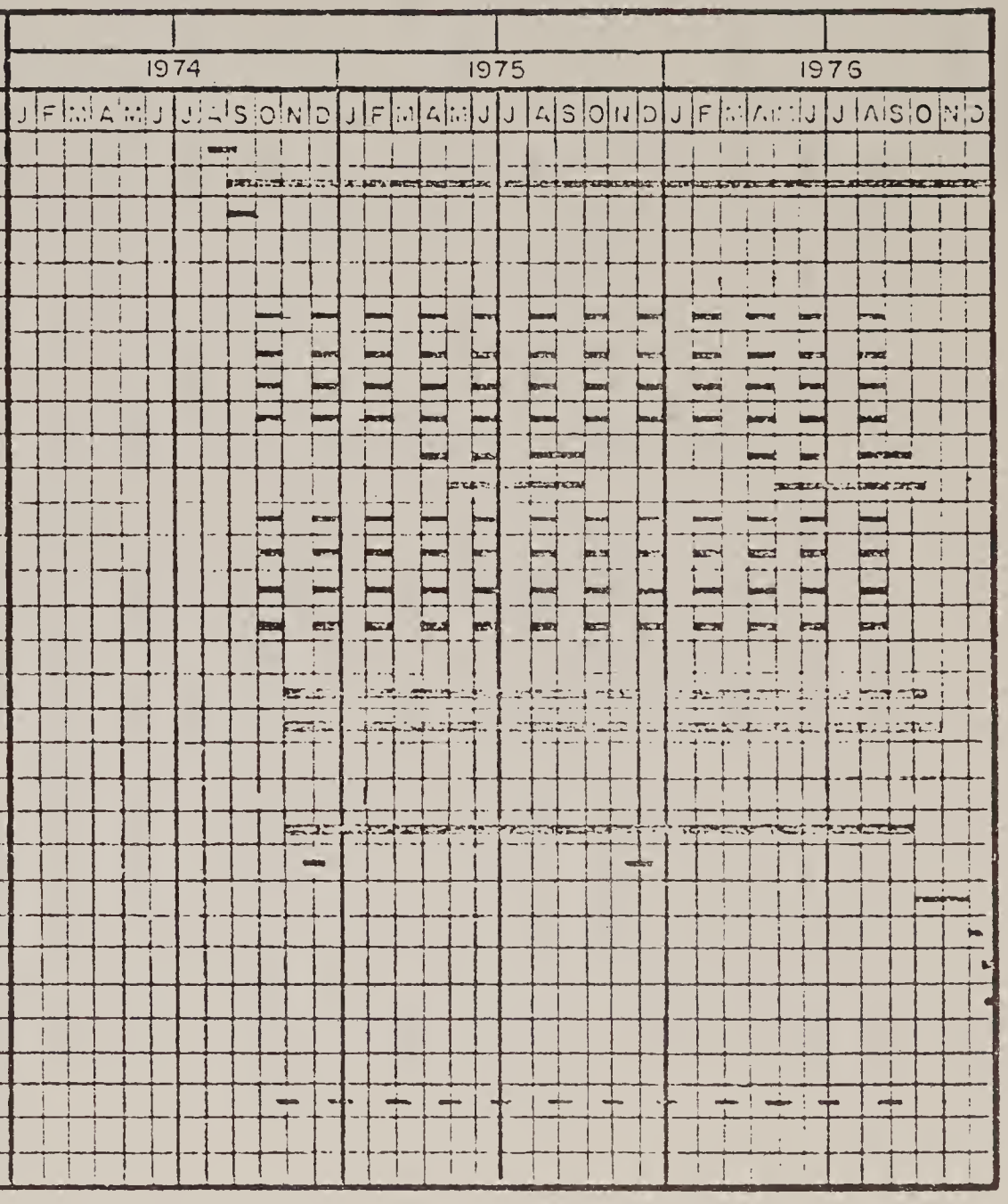
TABLE 2

NUS CORPORATION

SCHEDULE
AQUATIC BASELINE DATA ACCUMULATION PROGRAM

RIO BLANCO OIL SHALE PROJECT
(GULF - STANDARD)

SPECIFICATION TASK	START	COMP.
START DATE		
PERIOD OF PERFORMANCE		
START-UP TIME		
STUDY SCHEDULE		
FIELD STUDIES		
PHYSICAL		
WATER CHEMISTRY		
PLANKTON		
PERIPHYTON		
PRIMARY PROD.		
ANALYSIS		
BENTHOS		
MACROPHYTES		
FISH		
RARE AND ENDANGERED		
SPECIES		
LAB ANALYSIS		
STATISTICAL ANALYSIS		
REPORTS		
MONTHLY		
ANNUAL		
DRAFT FINAL		
COMMENT PERIOD		
INCORP. COMMENTS		
FINAL REPORT		
MEETINGS		
BIMONTHLY		



2.4.38

2.4.1.2. Methods

Water Flow

The following methods were utilized to determine certain physical and chemical characteristics. These determinations were made simultaneously with the collection of biological and chemical samples at each station. Stream flow velocity was measured with a Gurley flowmeter at bank side and at the maximum flow point at each station. The stream substrate was visually classified at each station at the same time as benthic samples were obtained. Color and odor were determined for each sample by methods described by the American Public Health Association (APHA 1971). The turbidity of each sample was determined with a Hach Photometric Turbidimeter. Field measurements of dissolved oxygen were made with a YSI dissolved oxygen meter (Model 51 A) or with the Alsterberg (Azide) modification of the Winkler Method (APHA 1971). In October - November determinations of pH were made in the field using a Leeds and Northrup portable pH meter (Model No. 7417); in December - January such measurements were made with an Analytic Measurements, Inc. portable meter (Model No. 107). Measurements of salinity (conductance) were made with a Beckman RB-3 Solu-Bridge. Field measurements of water temperature were made with a Montedoro-Whitney Thermister (Model 7510LA) or equivalent. Depth measurements were taken with a calibrated steel range pole; width measurements were made with a steel tape measure.

Water Chemistry

Duplicate samples were collected for the analysis of certain chemical characteristics of particular biological significance. The following characteristics are measured every two months: alkalinity, calcium, chloride, total hardness, magnesium, nitrate, nitrite, ammonia, Kjeldahl nitrogen, orthophosphate, total phosphate, potassium, dissolved silica, sodium, sulfate, dissolved organic carbon, total organic carbon, suspended solids, total dissolved solids.

Table 3 (p.) presents the analytical methods, limits of detection, and methods of sample preservation for the aforementioned analyses, as well as for the sediment analyses discussed under Benthos.

The analytical methods listed in Table 3 are described in American Public Health Association (1971), American Petroleum Institute (undated), and the Environmental Protection Agency (1971).

TABLE 3

WATER CHEMISTRY - ANALYTICAL LABORATORY METHODOLOGY[1]

Parameter	Measurement Methodology	Detection Limit (ppm)	Sample Preservation
Alkalinity, phenophthalein	Colorimetric	2.0	None required
Alkalinity, total	Colorimetric	2.0	None required
Ammonia, dissolved	Electrode	0.10	$HgCl_2$
Calcium, soluble	Atomic absorption	0.02	None required
Chloride, dissolved	Potentiometric	0.4	None required
Fluoride, dissolved	Electrode	0.019	None required
Hardness, total	EDTA Titration	2.0	None required
Iron, soluble	Atomic absorption	0.02	HCl
Iron, total	Atomic absorption	0.02	HCl
Magnesium, dissolved	Atomic absorption	0.005	HCl
Kjeldahl nitrogen	Kjeldahl digestion	0.70	$HgCl_2$
Nitrate, dissolved	Brucine	0.02	$HgCl_2$
Nitrite, dissolved	Diazotization	0.01	$HgCl_2$
Phosphate, ortho (dissolved)[2]	Ammonium molybdate - potassium antimonyl tartrate	0.01	$HgCl_2$
Phosphate, total[2]	Same as orthophosphate	0.01	$HgCl_2$
Potassium, dissolved	Atomic absorption	0.01	HCl
Silica, dissolved	Molybdosilicate	0.005	HCl
Sodium, dissolved	Atomic absorption	0.005	HCl
Sulfate, dissolved	Gravimetric	0.15	Refrigeration
Carbon, dissolved organic	Beckman TOC Analyzer	2.0	HCl
Carbon, total organic	Beckman TOC Analyzer	2.0	HCl
Solids, suspended	Filtration	1.0	None required
Solids, total dissolved	Filtration and evaporation	1.0	None required

[1]All methods are APHA (1971) unless otherwise noted.
[2]EPA (1971).

TABLE 3 (Continued)

SEDIMENT CHEMISTRY

Parameter	Measurement Methodology	Detection[3] Limit (ppm)	Sample Preservation
Arsenic	Extraction and Atomic absorption	4	Refrigeration
Aluminum	Extraction and Atomic absorption	10.0	Refrigeration
Herbicide	Gas Chromatography	100 ppb	Refrigeration
Lead	Extraction and Atomic absorption	4	Refrigeration
Mercury	Extraction and Atomic absorption	4	Refrigeration
Nitrogen, total Kjeldahl	Kjeldahl digestion	25.0	Refrigeration
Phosphate, total	Same as orthophosphate	0.25	Refrigeration
Solids, total volatile	Filtration, evaporation volatilization	10.0	None required
Zinc	Extration and Atomic absorption	2.0	Refrigeration

---

[3]Detection Limits vary with sample size.
[4]Available upon request

2.4.1.3. Results

A detailed listing of physical and chemical water quality data collected during the first two sampling periods is presented in Appendices A-2-1, A-2-2, A-3-1, A-3-2, A-3-3, and A-3-4.

Physical and chemical data obtained from the White River and Yellow Creek during the October - November sampling are within the same general ranges of concentration as those observed during pervious studies by the USGS (1971,1972,1973) and Everhart and May (1973). Thus, during the October - November period the ranges of concentration of various constituents were as follows:

	White River	Yellow Creek
Specific conductance (micromhos)	600 - 1500	2800 - 3000
pH	8.0 - 8.7	8.2 - 8.6
Alkalinity, total ($CaCO_3$)mg/l	178 - 224	772 - 1264
Chloride mg/l	28 - 36	28 - 109
Sulfate mg/l	49 - 52	163 - 296
Dissolved solids mg/l	452 - 496	2000 - 2100

During the December 1974 - January 1975 period the ranges of concentration were:

	White River	Yellow Creek
Specific conductance (micromhos	700 - 1000	2500 - 3500
pH	8.0 - 8.6	8.0
Alkalinity, total mg/l	185 - 358	745 - 1341
Chloride mg/l	33 - 48	25 - 29
Sulfate mg/l	50 - 69	170 - 292
Dissolved solids mg/l	461 - 699	2010 - 2343

APPENDIX A-1-1

DATES OF SAMPLING FOR INITIAL RBOSP AQUATIC BASELINE STUDIES, OCTOBER - NOVEMBER 1974

APPENDIX A-1-1

Station	Date Sampled	Flow Condition
1	11-7-74	Flowing
2	11-8-74	Flowing
3	11-1-74	Flowing
4	10-24-74	Flowing
5	11-5-74	Flowing
6	11-4-74	Dry
7	10-24-74	Flowing
8	11-4-74	Flowing
9	11-5-74	Flowing
10	10-25-74	Dry
11	10-25-74	Dry
12	11-4-74	Dry
13	11-4-74	Flowing
14	11-6-74	Flowing
15	10-31-74	Dry
16	10-31-74	Dry
17	10-31-74	Dry
18	10-31-74	Dry
19	10-31-74	Flowing
20	10-30-74	Flowing
21	10-30-74	Flowing
22	10-29-74	Flowing
23	11-12-74	Flowing
24	10-17-74	Flowing
25	10-17-74	Flowing
26	10-17-74	Flowing
27	10-16-74	Flowing
28	10-16-74	Flowing
29	10-15-74	Flowing
30	10-18-74	Flowing
31	10-18-74	Flowing
32	10-18-74	Flowing
33	10-19-74	Flowing
34	10-19-74	Flowing
35	10-19-74	Flowing

APPENDIX A-1-2

DATES OF SAMPLING FOR RBOSP AQUATIC BASELINE STUDIES, DECEMBER 1974 - JANUARY 1975

APPENDIX A-1-2

Station	Date Sampled	Flow Condition
1	1-10-75	Inaccessible
2	1-10-75	Inaccessible
3	1-15-75	Flowing
4	1-14-75	Flowing
5	1-16-75	Flowing
6	1-10-75	Dry
7	1-10-75	Frozen
8	1-10-75	Flowing
9	1-10-75	Flowing
10	12-9-74	Dry
11	12-9-74	Dry
12	12-9-74	Dry
13	12-9-74	Flowing
14	1-6-75	Flowing
15	12-9-74	Frozen
16	12-9-74	Dry
17	12-9-74	Dry
18	12-9-74	Frozen
19	1-6-75	Flowing
20	12-4-74	Flowing (Ice covered)
21	12-4-74	Flowing (Ice covered)
22	12-4-74	Flowing (Ice covered)
23	12-10-74	Flowing (Ice covered)
24	12-5-74	Flowing (Ice & Slush)
25	12-5-74	Flowing (Ice & Slush)
26	12-5-74	Flowing (Ice & Slush)
27	12-2-74	Flowing (Ice & Slush)
28	12-2-74	Flowing (Ice & Slush)
29	12-2-74	Flowing (Ice & Slush)
30	12-3-74	Flowing (Ice & Slush)
31	12-3-74	Flowing (Ice & Slush)
32	12-3-74	Flowing (Ice & Slush)
33	12-10-74	Ice covered
34	12-10-74	Flowing (Ice & Slush)
35	12-10-74	Flowing (Ice & Slush)

APPENDIX A-2-1

PHYSICAL AND CHEMICAL CHARACTERISTICS OF STREAMS
RBOSP AQUATIC BASELINE STUDIES, OCTOBER - NOVEMBER 1974

APPENDIX A-2-1

STATION	PARAMETER					
	WATER TEMPERATURE (°C)	CONDUCTIVITY (µmhos/cm)	DISSOLVED OXYGEN (mg/l)	ALKALINITY Total (mg/l)	ALKALINITY Phth. (mg/l)	pH
1	1	875	10.6	356	2	8.0
2	7	1000	4.6	413	<2	7.6
3	5	1190	8.5	345	<2	7.9
4	8	1000	9.1	413	<2	7.8
5	5	1400	11.8	410	<2	8.2
7	10	1000	9.6	274	<2	8.6
8	9	1100	9.2	378	<2	8.0
9	6	1200	9.5	383	<2	7.6
13	10	1200	8.9	410	<2	7.8
14	3	1800	13.4	454	<2	8.2
19	4	2800	14.3	772	57	8.2
20	7	3000	8.7	1149	---	8.5
21	8	3000	9.9	1244	156	8.6
22	10	3000	8.2	1264	120	8.6

APPENDIX A-2-1 (Continued)

STATION	PARAMETER					
	TURBIDITY (JTU)	COLOR (APHA Units)	ODOR	SUBSTRATE	WIDTH	DEPTH (In)
1	3	0-5	ND	Gr	7"	2
2	2	0-5	ND	Gr	4"	2
3	2	0-5	ND	Si,D	2"	1
4	5	0-5	ND	Sa,Gr	1'4"	1¼,½
5	2	0-5	ND	Si,Cl	1'2"	4
7	20	0-5	ND	Sa,Gr	3'	3,1½
8	2	0-5	ND	Gr	10"	2
9	2	0-5	ND	Gr	9"	2
13	2	0-5	ND	Sa,Gr	3'	1,1,1½
14	1	0-5	ND	Cl	1'	6
19	3	0-5	ND	Si,St	10"	6
20	12	0-5	ND	Gr	2'4"	4½
21	25	0-5	ND	Sa,Gr	5'10"	7,5,3
22	10	0-5	ND	Gr,Si	16'11"	2½,3,3½

APPENDIX A-2-1(Continued)

STATION	PARAMETER					
	WATER TEMPERATURE (°C)	CONDUCTIVITY (µmhos/cm)	DISSOLVED OXYGEN (mg/l)	ALKALINITY Total (mg/l)	ALKALINITY Phth. (mg/l)	pH
23	2	750	11.9	190	<2	8.0
24	12	600	11.4	182	<2	8.2
25	12	650	11.4	180	<2	8.2
26	12	650	11.4	198	<2	8.2
27	11	600;600;700	12.1	199	<2	8.6
28	8	1500;650;580	11.6	194	<2	8.2
29	11	855;750;690	10.8	224	<2	8.7
30	12	675	12.0	179	<2	8.0
31	12	700	11.8	178	<2	8.0
32	12	700	12.0	191	<2	8.0
33	12	700	8.8	183	<2	8.4
34	10	700	11.6	179	<2	8.4
35	10	700	11.6	198	<2	8.4

APPENDIX A-2-1 (Continued)

STATION	PARAMETER					
	TURBIDITY (JTU)	COLOR (APHA Units)	ODOR	SUBSTRATE	WIDTH	DEPTH (In)
23	10	0-5	ND	Co	28'	4,16,6
24	8	0-5	ND	Co,Sa	152'	2,22,9
25	7	0-5	ND	Co	152'	2,22,9
26	8	0-5	ND	Gr,Co	152'	2,22,9
27	7	0-5	ND	Co	45'	2,19,14
28	7	0-5	ND	Gr,Sa	65'	3,7,1
29	8	0-5	ND	Co,St	22'7"	1,12,2
30	9	0-5	ND	Co	138'	2,21,10
31	10	0-5	ND	Co	138'	2,21,10
32	10	0-5	ND	Co	138'	2,21,10
33	8	0-5	ND	Gr	26'10"	3,25,12
34	9	0-5	ND	Gr,Co	47'2"	1,24,4
35	8	0-5	ND	Gr,Co	56'	4,23,3

[1]Stations 6,10,11,12,15,16,17, and 18 were dry

Cl - Clay
Co - Cobbles
D - Detritus
Gr - Gravel
ND - Not Detectable
Sa - Sand
Si - Silt
St - Stone
Veg - Vegetation
I Cov - Ice Covered

APPENDIX A-2-2

PHYSICAL AND CHEMICAL CHARACTERISTICS OF STREAMS
RBOSP AQUATIC BASELINE STUDIES, DECEMBER 1974 - JANUARY 1975

APPENDIX A-2-2

STATION	PARAMETER					
	WATER TEMPERATURE (°C)	CONDUCTIVITY (µmhos/cm)	DISSOLVED OXYGEN (mg/l)	ALKALINITY Total (mg/l)	ALKALINITY Phth. (mg/l)	pH
3	5	1300	9.9	455	<2	7.0
4	5	1100	9.5	429	<2	8.3
5	3	1300	10.2	422	13	8.2
8	5	1100	10.8	384	23	8.0
9	4	1200	8.9	405	10	7.9
13	7	4250	10.1	413	6	8.0
14	0	1700	11.2	521	<2	7.8
19	2	2500	7.3	745	<2	8.0
20	0	3500	8.4	1298	83	8.0
21	0	3500	7.9	1341	85	8.0
22	0	3500	7.9	1334	88	8.0

APPENDIX A-2-2 (Continued)

STATION	PARAMETER					
	WATER TEMPERATURE (°C)	CONDUCTIVITY (µmhos/cm)	DISSOLVED OXYGEN (mg/l)	ALKALINITY Total (mg/l)	ALKALINITY Phth. (mg/l)	pH
23	0	750	11.8	244	21	8.5
24	0	750	11.5	185	20	8.3
25	0	700	11.4	187	29	8.3
26	0	750	11.6	200	15	8.3
27	0	600	12.6	246	22	8.0
28	0	900	12.8	247	25	8.2
29	0	1000	12.5	358	32	8.0
30	0	750	11.7	206	16	8.0
31	0	800	11.9	210	25	8.0
32	0	700	10.8	230	28	8.0
33	0	950	13.2	208	30	8.6
34	0	900	11.5	235	31	8.6
35	0	900	11.8	241	23	8.6

APPENDIX A-2-2 (Continued)

STATION	PARAMETER					
	TURBIDITY (JTU)	COLOR (APHA Units)	ODOR	SUBSTRATE	WIDTH	DEPTH (In)
3	1	0-5	ND	Gr,D	13"	½
4	2	0-5	ND	Gr	8"	2
5	1	0-5	ND	Si,D	19'	3-4
8	1	0-5	ND	Gr	13"	2
9	1	0-5	ND	Gr,S	11"	2
13	1	0-5	ND	Gr,S	3'	1½;1½
14	1	0-5	ND	Gr,Veg	10"	2
19	4	0-5	ND	Gr,Sa,Si	26"	5;2
20	35	0-5	ND	Gr	24"	8
21	30	0-5	ND	I Cov	--	19
22	30	0-5	ND	S,Gr	--	8

APPENDIX A-2-2 (Continued)

STATION	PARAMETER					
	TURBIDITY (JTU)	COLOR (APHA Units)	ODOR	SUBSTRATE	WIDTH	DEPTH (In)
23	40	0-5	ND	Co,Sa	35'	Ice,18,12
24	40	0-5	ND	Sa,Gr	150'	Ice,18,12
25	40	0-5	ND	Co	150'	Ice,18,12
26	40	0-5	ND	Co	150'	Ice,18,12
27	30	0-5	ND	Co	--	--
28	35	0-5	ND	ND	--	--
29	30	0-5	ND	ND	--	--
30	20	0-5	ND	Co	113'	Ice,18,3
31	20	0-5	ND	Co	113	Ice,18,3
32	10	0-5	ND	Co	113'	Ice,18,3
33	10	0-5	ND	Co,Gr	5'	5
34	60	0-5	ND	Co,Gr	5'	5
35	45	0-5	ND	Co,Gr	45'	12,22,6

Cl - Clay
Co - Cobbles
D - Detritus
Gr - Gravel
ND - Not Detectable
Sa - Sand
Si - Silt
St - Stone
Veg - Vegetation
I Cov - Ice Covered

APPENDIX A-2-2 (Continued)

[1]Stations 1 and 2 were inaccessible due to snow accumulation, Stations 6,7,10 - 12, 15 - 18 were either dry or frozen solid.

APPENDIX A-3-1

WATER CHEMISTRY DATA. RBOSP AQUATIC BASELINE STUDIES
OCTOBER - NOVEMBER 1974

(Data for Color are APHA Units; Other Data
are expressed in mg/l)

APPENDIX A-3-1[1]

STATION REPLICATE	PARAMETER					
	AMMONIA (N)	CALCIUM (Ca)	ORGANIC CARBON (C)	CHLORIDE (Cl)	COLOR (APHA)	FLUORIDE (F)
1 A	<0.10	93	20	4	0-5	0.30
1 B	<0.10	95	18	3	0-5	0.32
2 A	<0.10	85	18	5	0-5	0.44
2 B	<0.10	85	18	6	0-5	0.49
3 A	<0.10	93	60	10	0-5	0.30
3 B	<0.10	88	60	11	0-5	0.19
4 A	<0.10	116	30	8	0-5	0.19
4 B	<0.10	114	16	8	0-5	0.30
5 A	<0.10	108	32	12	0-5	0.42
5 B	<0.10	108	28	12	0-5	0.42
7 A	<0.10	84	24	11	0-5	0.30
7 B	<0.10	83	18	12	0-5	0.30
8 A	<0.10	88	28	7	0-5	0.30
8 B	<0.10	88	28	7	0-5	0.32
9 A	<0.10	93	26	7	0-5	0.32
9 B	<0.10	95	26	7	0-5	0.30

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER					
	AMMONIA (N)	CALCIUM (Ca)	ORGANIC CARBON (C)	CHLORIDE (Cl)	COLOR (APHA)	FLUORIDE (F)
13 A	<0.10	88	18	8	0-5	0.40
13 B	<0.10	88	18	8	0-5	0.40
14 A	<0.10	108	34	16	0-5	0.32
14 B	<0.10	115	32	16	0-5	0.32
19 A	<0.10	72	60	28	0-5	0.44
19 B	<0.10	62	50	37	0-5	0.48
20 A	<0.10	34	90	96	0-5	0.46
20 B	<0.10	32	70	97	0-5	0.42
21 A	<0.10	42	70	96	0-5	1.80
21 B	<0.10	40	80	100	0-5	1.80
22 A	<0.10	43	70	109	0-5	1.90
22 B	<0.10	40	80	101	0-5	1.90
23 A	<0.10	73	13	31	0-5	0.30
23 B	<0.10	71	12	36	0-5	0.27
24 A	<0.10	77	13	28	0-5	0.25
24 B	<0.10	71	13	32	0-5	0.25

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER					
	AMMONIA (N)	CALCIUM (Ca)	ORGANIC CARBON (C)	CHLORIDE (Cl)	COLOR (APHA)	FLUORIDE (F)
25 A	<0.10	72	12	32	0-5	0.23
25 B	<0.10	72	14	32	0-5	0.23
26 A	<0.10	70	13	31	0-5	0.22
26 B	<0.10	72	12	32	0-5	0.22
27 A	<0.10	74	11	29	0-5	0.27
27 B	<0.10	71	12	32	0-5	0.27
28 A	<0.10	72	15	31	0-5	0.23
28 B	<0.10	72	15	32	0-5	0.25
29 A	<0.10	70	11	31	0-5	0.27
29 B	<0.10	72	15	35	0-5	0.35
30 A	<0.10	69	12	31	0-5	0.25
30 B	<0.10	69	12	34	0-5	0.23
31 A	<0.10	69	13	32	0-5	0.21
31 B	<0.10	70	13	31	0-5	0.25
32 A	<0.10	71	14	32	0-5	0.27
32 B	<0.10	73	13	32	0-5	0.27

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER					
	AMMONIA (N)	CALCIUM (Ca)	ORGANIC CARBON (C)	CHLORIDE (Cl)	COLOR (APHA)	FLUORIDE (F)
33 A	<0.10	71	13	32	0-5	0.30
33 B	<0.10	69	12	32	0-5	0.25
34 A	<0.10	74	15	33	0-5	0.27
34 B	<0.10	71	14	33	0-5	0.30
35 A	<0.10	72	19	31	0-5	0.30
35 B	<0.10	71	16	40	0-5	0.30

[1]Stations 6,10,11,12,15,16,17, and 18 were dry

APPENDIX A-3-11 (Continued)

STATION REPLICATE	PARAMETER						
	HARDNESS ($CaCO_3$)	SOLUBLE IRON(Fe)	TOTAL IRON(Fe)	MAGNESIUM (Mg)	NITRATE (N)	NITRITE (N)	KJELDAHL NITROGEN(N)
1 A	430	<0.02	0.05	48	0.7	<0.01	0.31
1 B	430	<0.02	0.07	48	1.0	<0.01	0.28
2 A	400	<0.02	0.14	45	<0.2	<0.01	0.31
2 B	400	<0.02	0.16	45	<0.2	<0.01	0.23
3 A	460	<0.02	0.09	55	2.2	0.01	2.14
3 B	450	<0.02	0.09	55	1.9	0.01	1.65
4 A	530	<0.02	0.02	58	1.1	<0.01	0.36
4 B	510	<0.02	0.03	56	1.1	<0.01	0.25
5 A	590	<0.02	0.02	78	0.5	<0.01	0.21
5 B	590	<0.02	0.08	78	0.5	<0.01	0.27
7 A	440	<0.02	0.15	56	0.9	<0.01	0.26
7 B	440	<0.02	0.13	56	0.6	<0.01	0.22
8 A	440	<0.02	<0.02	53	0.9	<0.01	0.15
8 B	440	<0.02	0.02	53	1.0	<0.01	0.10
9 A	470	<0.02	0.06	58	0.8	<0.01	0.28
9 B	480	<0.02	0.07	58	0.9	<0.01	0.26

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER						
	HARDNESS ($CaCO_3$)	SOLUBLE IRON (Fe)	TOTAL IRON (Fe)	MAGNESIUM (Mg)	NITRATE (N)	NITRITE (N)	KJELDAHL NITROGEN (N)
13 A	470	<0.02	0.02	60	0.8	<0.01	0.23
13 B	470	<0.02	0.04	60	0.5	<0.01	0.23
14 A	650	<0.02	0.02	93	0.9	<0.01	0.45
14 B	680	<0.02	0.05	95	0.7	<0.01	0.39
19 A	900	<0.02	0.18	176	<0.2	<0.01	0.26
19 B	850	<0.02	0.07	170	<0.2	<0.01	0.28
20 A	500	<0.02	0.26	102	1.4	0.01	0.43
20 B	500	<0.02	0.23	102	1.4	0.01	0.41
21 A	520	<0.02	0.32	100	1.6	0.01	0.49
21 B	500	<0.02	0.71	98	1.5	0.01	0.47
22 A	500	<0.02	0.40	96	1.4	0.01	0.44
22 B	490	<0.02	0.34	96	1.4	0.01	0.53
23 A	290	<0.02	0.18	23	<0.2	0.01	0.18
23 B	280	<0.02	0.39	25	<0.2	0.01	0.18
24 A	280	<0.02	0.29	22	<0.2	<0.01	0.10
24 B	270	<0.02	0.17	22	<0.2	<0.01	0.10

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER						
	HARDNESS ($CaCO_3$)	SOLUBLE IRON(Fe)	TOTAL IRON(Fe)	MAGNESIUM (Mg)	NITRATE (N)	NITRITE (N)	KJELDAHL NITROGEN(N)
25 A	270	<0.02	0.21	22	<0.2	<0.01	0.10
25 B	270	<0.02	0.22	22	<0.2	<0.01	0.10
26 A	270	<0.02	0.22	22	<0.2	<0.01	0.10
26 B	270	<0.02	0.27	22	<0.2	<0.01	0.17
27 A	270	<0.02	0.18	22	<0.2	<0.01	0.10
27 B	270	<0.02	0.19	22	<0.2	<0.01	0.10
28 A	270	<0.02	0.22	22	<0.2	<0.01	0.10
28 B	270	<0.02	0.22	22	<0.2	<0.01	0.10
29 A	270	<0.02	0.27	23	<0.2	<0.01	0.18
29 B	290	<0.02	0.24	27	<0.2	<0.01	0.18
30 A	260	<0.02	0.25	22	<0.2	<0.01	0.14
30 B	260	<0.02	0.29	22	<0.2	<0.01	0.12
31 A	260	<0.02	0.28	22	<0.2	<0.01	0.11
31 B	270	<0.02	0.29	22	<0.2	<0.01	0.11
32 A	270	<0.02	0.25	23	<0.2	<0.01	0.17
32 B	280	<0.02	0.22	23	<0.2	<0.01	0.10

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER						
	HARDNESS ($CaCO_3$)	SOLUBLE IRON(Fe)	TOTAL IRON(Fe)	MAGNESIUM (Mg)	NITRATE (N)	NITRITE (N)	KJELDAHL NITROGEN(N)
33 A	280	<0.02	0.24	23	<0.2	<0.01	0.10
33 B	270	<0.02	0.27	23	<0.2	<0.01	0.10
34 A	280	<0.02	0.22	23	<0.2	<0.01	0.12
34 B	270	<0.02	0.25	23	<0.2	<0.01	0.10
35 A	270	<0.02	0.33	23	<0.2	<0.01	0.31
35 B	270	<0.02	0.22	23	<0.2	<0.01	0.33

[1]Stations 6,10,11,12,15,16,17, and 18 were dry

APPENDIX A-3-1[1] (Continued)

STATION REPLICATE	PARAMETER						
	ODOR	ORTHO-PHOSPHATE(P)	TOTAL PHOSPHATE(P)	POTASSIUM (K)	SOLUBLE SILICA(Si)	DISSOLVED SOLIDS	SUSPENDED SOLIDS
1 A	None	<0.01	0.01	1.5	4.8	561	7
1 B	None	<0.01	0.02	1.5	5.3	578	6
2 A	None	<0.01	0.04	1.2	5.6	648	2
2 B	None	0.01	0.06	1.2	6.1	651	5
3 A	None	0.02	0.28	4.6	2.6	826	64
3 B	None	0.03	0.23	4.7	3.1	814	88
4 A	None	0.02	0.04	1.9	9.5	819	9
4 B	None	0.01	0.03	1.8	9.5	827	18
5 A	None	<0.01	0.01	4.0	2.8	1000	12
5 B	None	<0.01	0.02	3.9	3.2	1000	16
7 A	None	0.01	0.02	2.2	8.9	708	39
7 B	None	0.01	0.03	2.0	8.9	685	71
8 A	None	0.02	0.02	2.0	4.1	685	38
8 B	None	0.02	0.02	2.4	4.7	673	5
9 A	None	<0.01	0.02	2.5	4.7	808	5
9 B	None	<0.01	0.04	2.5	4.5	797	4

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER						
	ODOR	ORTHO-PHOSPHATE(P)	TOTAL PHOSPHATE(P)	POTASSIUM (K)	SOLUBLE SILICA(Si)	DISSOLVED SOLIDS	SUSPENDED SOLIDS
13 A	None	0.02	0.04	2.6	4.3	830	1
13 B	None	0.03	0.03	2.6	4.8	832	2
14 A	None	<0.01	0.02	3.8	3.4	1200	9
14 B	None	<0.01	0.01	4.0	3.1	1200	6
19 A	None	0.02	0.04	8.8	7.8	2000	15
19 B	None	0.02	0.04	8.2	7.8	2100	17
20 A	None	0.01	0.02	6.4	4.7	2100	28
20 B	None	<0.01	0.03	6.5	4.5	2100	35
21 A	None	<0.01	0.10	6.4	4.7	2100	38
21 B	None	<0.01	0.06	6.3	4.8	2000	110
22 A	None	<0.01	0.02	6.5	4.1	2100	28
22 B	None	<0.01	0.03	6.4	4.0	2100	<1
23 A	None	<0.01	0.04	2.5	2.4	478	17
23 B	None	<0.01	0.03	2.4	2.4	474	30
24 A	None	<0.01	0.03	2.4	5.7	455	16
24 B	None	<0.01	0.02	2.4	5.7	457	20

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER						
	ODOR	ORTHO-PHOSPHATE(P)	TOTAL PHOSPHATE(P)	POTASSIUM (K)	SOLUBLE SILICA(Si)	DISSOLVED SOLIDS	SUSPENDED SOLIDS
25 A	None	<0.01	0.04	2.5	5.7	452	19
25 B	None	<0.01	0.03	2.3	5.7	458	21
26 A	None	<0.01	0.03	2.4	5.6	461	26
26 B	None	<0.01	0.02	2.4	5.6	461	17
27 A	None	0.01	0.03	2.5	5.1	463	22
27 B	None	<0.01	0.02	2.5	5.9	468	21
28 A	None	0.01	0.02	2.4	5.8	468	19
28 B	None	0.01	0.02	2.2	5.9	454	17
29 A	None	<0.01	0.03	2.5	5.6	480	22
29 B	None	<0.01	0.02	2.9	5.5	455	25
30 A	None	<0.01	0.03	2.5	5.5	450	25
30 B	None	<0.01	0.04	2.4	5.6	451	17
31 A	None	<0.01	0.03	2.5	5.5	464	27
31 B	None	<0.01	0.03	2.5	5.5	464	23
32 A	None	<0.01	0.02	2.5	5.4	496	22
32 B	None	<0.01	0.02	2.5	5.4	488	23

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER						
	ODOR	ORTHO-PHOSPHATE(P)	TOTAL PHOSPHATE(P)	POTASSIUM (K)	SOLUBLE SILICA(Si)	DISSOLVED SOLIDS	SUSPENDED SOLIDS
33 A	None	<0.01	0.02	2.5	5.4	482	16
33 B	None	<0.01	0.02	2.4	5.2	480	17
34 A	None	<0.01	0.02	2.5	5.5	472	13
34 B	None	<0.01	0.04	2.4	5.5	473	28
35 A	None	<0.01	0.03	2.4	5.4	488	17
35 B	None	<0.01	0.02	2.5	5.2	495	16

[1]Stations 6,10,11,12,15,16,17, and 18 were dry

APPENDIX A-3-1[1] (Continued)

STATION REPLICATE	PARAMETER			
	SULFATE (S)	TURBIDITY (JTU)	SODIUM (Na)	ORGANIC CARBON DISSOLVED (C)
1 A	42	3	50	25
1 B	43	2	50	21
2 A	47	2	88	24
2 B	45	2	88	17
3 A	96	20	100	31
3 B	97	20	100	29
4 A	87	4	88	19
4 B	84	5	88	19
5 A	130	1	132	24
5 B	149	2	132	24
7 A	88	20	90	16
7 B	87	20	90	16
8 A	70	1	76	17
8 B	68	1	76	23
9 A	92	2	98	19
9 B	88	2	98	23

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER			
	SULFATE (S)	TURBIDITY (JTU)	SODIUM (Na)	ORGANIC CARBON DISSOLVED (C)
13 A	90	2	112	23
13 B	92	1	112	19
14 A	152	1	164	21
14 B	154	1	164	17
19 A	289	2	400	49
19 B	296	4	400	48
20 A	173	10	640	48
20 B	164	14	640	37
21 A	174	10	640	59
21 B	172	40	640	46
22 A	163	10	660	49
22 B	170	10	640	59
23 A	52	10	64	17
23 B	52	10	64	17
24 A	49	8	60	15
24 B	50	8	60	15

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER			
	SULFATE (S)	TURBIDITY (JTU)	SODIUM (Na)	ORGANIC CARBON DISSOLVED (C)
25 A	52	7	60	14
25 B	52	7	60	15
26 A	50	8	60	15
26 B	50	7	60	14
27 A	51	6	60	15
27 B	51	7	60	16
28 A	51	7	60	15
28 B	51	7	60	16
29 A	52	10	70	17
29 B	52	6	104	19
30 A	50	9	60	15
30 B	52	8	60	14
31 A	50	10	60	15
31 B	50	10	60	18
32 A	50	9	68	19
32 B	52	10	70	15

APPENDIX A-3-1 (Continued)

STATION REPLICATE	PARAMETER			
	SULFATE (S)	TURBIDITY (JTU)	SODIUM (Na)	ORGANIC CARBON DISSOLVED (C)
33 A	48	7	64	15
33 B	51	8	64	16
34 A	50	9	64	14
34 B	52	9	64	14
35 A	50	7	64	16
35 B	50	8	64	16

[1]Stations 6,10,11,12,15,16,17, and 18 were dry

APPENDIX A-3-2

SIMPLE STATISTICS FOR REPLICATE WATER CHEMISTRY ANALYSIS
RBOSP AQUATIC BASELINE STUDIES
OCTOBER - NOVEMBER 1974

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=1

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
REP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
MCALK	2	349.000000	12.727922	162.000000	698.000000	162.000000	340.000000	358.000000	3.647
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	94.000000	1.414214	2.000000	188.000000	2.000000	93.000000	95.000000	1.504
CC	2	19.000000	1.414214	2.000000	38.000000	2.000000	18.000000	20.000000	7.443
CL	2	3.500000	0.707107	0.500000	7.000000	0.500000	3.000000	4.000000	20.203
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.310000	0.014142	0.000200	0.620000	0.000200	0.300000	0.320000	4.562
HARD	2	430.000000	0.0	0.0	860.000000	0.0	430.000000	430.000000	0.0
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.060000	0.014142	0.000200	0.120000	0.000200	0.050000	0.070000	23.570
NC	2	48.000000	0.0	0.0	96.000000	0.0	48.000000	48.000000	0.0
NO3_N	2	0.850000	0.212132	0.045000	1.700000	0.045000	0.700000	1.000000	24.957
NO2_N	2	0.505000	0.700036	0.490050	1.010000	0.490050	0.010000	1.000000	138.621
N	2	0.160000	0.212132	0.045000	0.320000	0.045000	0.010000	0.310000	132.583
ODOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
P	2	1.500000	0.0	0.0	3.000000	0.0	1.500000	1.500000	0.0
SI	2	5.050000	0.353553	0.125000	10.100000	0.125000	4.800000	5.300000	7.001
DISMAT	2	569.500000	12.020815	144.500000	1139.000000	144.500000	561.000000	578.000000	2.111
SUSMAT	2	6.500000	0.707107	0.500000	13.000000	0.500000	6.000000	7.000000	10.879
SP_COND	0								
SO4_S	2	42.500000	0.707107	0.500000	85.000000	0.500000	42.000000	43.000000	1.664
TURB	2	2.500000	0.707107	0.500000	5.000000	0.500000	2.000000	3.000000	28.284
DOC	2	23.000000	2.828427	8.000000	46.000000	8.000000	21.000000	25.000000	12.298
SIO2	2	10.601950	0.756251	0.571915	21.603900	0.571915	10.267200	11.336700	7.001
SO4	2	127.330000	2.118492	4.488008	254.660000	4.488008	125.832000	128.828000	1.664
TPO4	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	1.658925	2.299017	5.283240	3.317850	5.283240	0.032850	3.285000	138.621
NO3	2	3.762780	0.939066	0.881845	7.525560	0.881845	3.098760	4.426800	24.957
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	127.330000	2.118492	4.488008	254.660000	4.488008	125.832000	128.828000	1.664
TPO4_D	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	3.762780	0.939066	0.881845	7.525560	0.881845	3.098760	4.426800	24.957
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	2.500000	0.707107	0.500000	5.000000	0.500000	2.000000	3.000000	28.284
SI_D	2	5.050000	0.353553	0.125000	10.100000	0.125000	4.800000	5.300000	7.001
K_D	2	1.500000	0.0	0.0	3.000000	0.0	1.500000	1.500000	0.0
CL_D	2	3.500000	0.707107	0.500000	7.000000	0.500000	3.000000	4.000000	20.203
SIO2_D	2	10.601950	0.756251	0.571915	21.603900	0.571915	10.267200	11.336700	7.001
CA_D	2	94.000000	1.414214	2.000000	188.000000	2.000000	93.000000	95.000000	1.504
SO4_S_D	2	42.500000	0.707107	0.500000	85.000000	0.500000	42.000000	43.000000	1.664
SUSMAT_D	2	6.500000	0.707107	0.500000	13.000000	0.500000	6.000000	7.000000	10.879
TPO4_P_D	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F_D	2	0.160000	0.212132	0.045000	0.320000	0.045000	0.010000	0.310000	132.583

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=1

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N_D	2	0.850000	0.212132	0.045000	1.700000	0.045000	0.700000	1.000000	24.957
PO4_D	2	48.000000	0.0	0.0	96.000000	0.0	48.000000	48.000000	0.0
TOTPE_P	2	0.060000	0.014142	0.000200	0.120000	0.000200	0.050000	0.070000	23.570
DISPE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TC_D	2	19.000000	1.414214	2.000000	38.000000	2.000000	18.000000	20.000000	7.443
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=2

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NH3	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
M.ALK	2	388.000000	1.414214	2.000000	776.000000	2.000000	387.000000	389.000000	0.364
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	85.000000	0.0	0.0	170.000000	0.0	85.000000	85.000000	0.0
FE	2	23.000000	7.071068	50.000000	46.000000	50.000000	18.000000	28.000000	30.744
CL	2	5.500000	0.707107	0.500000	11.000000	0.500000	5.000000	6.000000	12.856
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.465000	0.035355	0.001250	0.930000	0.001250	0.440000	0.490000	7.603
HARD	2	400.000000	0.0	0.0	800.000000	0.0	400.000000	400.000000	0.0
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TSTFE	2	0.150000	0.014142	0.000200	0.300000	0.000200	0.140000	0.160000	9.428
MG	2	45.000000	0.0	0.0	90.000000	0.0	45.000000	45.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
K	2	0.270000	0.056569	0.003200	0.540000	0.003200	0.230000	0.310000	20.951
COLR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.050000	0.014142	0.000200	0.100000	0.000200	0.040000	0.060000	28.284
A	2	1.200000	0.0	0.0	2.400000	0.0	1.200000	1.200000	0.0
SI	2	5.650000	0.353553	0.125000	11.700000	0.125000	5.600000	6.100000	6.044
DISPAT	2	649.500000	2.121320	4.500000	1299.000000	4.500000	648.000000	651.000000	0.327
SUSPAT	2	3.500000	2.121320	4.500000	7.000000	4.500000	2.000000	5.000000	60.609
SP_COND	0								
SO4_S	2	46.000000	1.414214	2.000000	92.000000	2.000000	45.000000	47.000000	3.074
TURB	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
CLC	2	20.500000	4.949747	24.500000	41.000000	24.500000	17.000000	24.000000	24.145
SIO2	2	12.513150	0.756251	0.571915	25.026300	0.571915	11.978400	13.047900	6.044
SO4	2	137.616760	4.236984	17.952032	275.632000	17.952032	134.820000	140.812000	3.074
TPO4	2	0.153000	0.043275	0.001873	0.306000	0.001873	0.122400	0.183600	28.284
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	137.616000	4.236984	17.952032	275.632000	17.952032	134.820000	140.812000	3.074
TPO4_D	2	0.153000	0.043275	0.001873	0.306000	0.001873	0.122400	0.183600	28.284
PO4_D	2	0.015300	0.021637	0.000468	0.030600	0.000468	0.0	0.030600	141.421
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
SI_D	2	5.650000	0.353553	0.125000	11.700000	0.125000	5.600000	6.100000	6.044
K_D	2	1.200000	0.0	0.0	2.400000	0.0	1.200000	1.200000	0.0
CL_D	2	5.500000	0.707107	0.500000	11.000000	0.500000	5.000000	6.000000	12.856
SIO2_D	2	12.513150	0.756251	0.571915	25.026300	0.571915	11.978400	13.047900	6.044
CA_D	2	85.000000	0.0	0.0	170.000000	0.0	85.000000	85.000000	0.0
SO4_S_D	2	46.000000	1.414214	2.000000	92.000000	2.000000	45.000000	47.000000	3.074
SUSPAT_D	2	3.500000	2.121320	4.500000	7.000000	4.500000	2.000000	5.000000	60.609
TPO4_P_D	2	0.050000	0.014142	0.000200	0.100000	0.000200	0.040000	0.060000	28.284
PO4_P_D	2	0.005000	0.007071	0.000050	0.010000	0.000050	0.0	0.010000	141.421
K_D	2	0.270000	0.056569	0.003200	0.540000	0.003200	0.230000	0.310000	20.951

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=2

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_D	2	45.000000	0.0	0.0	90.000000	0.0	45.000000	45.000000	0.0
TOTFE_D	2	0.150000	0.014142	0.000200	0.300000	0.000200	0.140000	0.160000	9.428
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PC_D	2	23.000000	7.071068	50.000000	46.000000	50.000000	18.000000	28.000000	30.744
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=3

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
REP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
P_ALK	2	330.000000	0.0	0.0	660.000000	0.0	330.000000	330.000000	0.0
PHS_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	90.500000	3.535534	12.500000	181.000000	12.500000	88.000000	93.000000	3.907
CC	2	60.000000	0.0	0.0	120.000000	0.0	60.000000	60.000000	0.0
CL	2	10.500000	0.707107	0.500000	21.000000	0.500000	10.000000	11.000000	6.734
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.245000	0.077782	0.006050	0.490000	0.006050	0.190000	0.300000	31.748
HARD	2	455.000000	7.071068	50.000000	910.000000	50.000000	450.000000	460.000000	1.554
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.090000	0.0	0.0	0.180000	0.0	0.090000	0.090000	0.0
MG	2	55.000000	0.0	0.0	110.000000	0.0	55.000000	55.000000	0.0
NO3_N	2	2.050000	0.212132	0.045000	4.100000	0.045000	1.900000	2.200000	10.348
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	1.895000	0.346482	0.120050	3.790000	0.120050	1.650000	2.140000	18.284
ODOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
TPO4_P	2	0.255000	0.035355	0.001250	0.510000	0.001250	0.230000	0.280000	13.865
K	2	4.650000	0.070711	0.005000	9.300000	0.005000	4.600000	4.700000	1.521
SI	2	2.850000	0.353553	0.125000	5.700000	0.125000	2.600000	3.100000	12.405
DISMAT	2	820.000000	8.485281	72.000000	1640.000000	72.000000	814.000000	826.000000	1.035
SUSMAT	2	76.000000	16.970563	288.000000	152.000000	288.000000	64.000000	88.000000	22.330
SP_COND	0								
SO4_S	2	96.500000	0.707107	0.500000	193.000000	0.500000	96.000000	97.000000	0.733
TURB	2	20.000000	0.0	0.0	40.000000	0.0	20.000000	20.000000	0.0
UCC	2	30.000000	1.414214	2.000000	60.000000	2.000000	29.000000	31.000000	4.714
SIO2	2	6.096150	0.758251	0.571915	12.192300	0.571915	5.561400	6.630900	12.405
SO4	2	289.114000	2.118492	4.488008	578.228000	4.488008	287.616000	290.612000	0.733
TPO4	2	0.780300	0.108187	0.011705	1.560600	0.011705	0.703800	0.856800	13.865
PO4	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	9.074940	0.939066	0.881845	18.149880	0.881845	8.410920	9.738960	10.348
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	289.114000	2.118492	4.488008	578.228000	4.488008	287.616000	290.612000	0.733
TPO4_D	2	0.780300	0.108187	0.011705	1.560600	0.011705	0.703800	0.856800	13.865
PO4_D	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
NO2_D	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3_D	2	9.074940	0.939066	0.881845	18.149880	0.881845	8.410920	9.738960	10.348
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	20.000000	0.0	0.0	40.000000	0.0	20.000000	20.000000	0.0
SI_D	2	2.850000	0.353553	0.125000	5.700000	0.125000	2.600000	3.100000	12.405
K_D	2	4.650000	0.070711	0.005000	9.300000	0.005000	4.600000	4.700000	1.521
CL_D	2	10.500000	0.707107	0.500000	21.000000	0.500000	10.000000	11.000000	6.734
SIO2_D	2	6.096150	0.758251	0.571915	12.192300	0.571915	5.561400	6.630900	12.405
CA_D	2	90.500000	3.535534	12.500000	181.000000	12.500000	88.000000	93.000000	3.907
SO4_S_D	2	96.500000	0.707107	0.500000	193.000000	0.500000	96.000000	97.000000	0.733
SUSMAT_D	2	76.000000	16.970563	288.000000	152.000000	288.000000	64.000000	88.000000	22.330
TPO4_P_D	2	0.255000	0.035355	0.001250	0.510000	0.001250	0.230000	0.280000	13.865
PO4_P_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
N_D	2	1.895000	0.346482	0.120050	3.790000	0.120050	1.650000	2.140000	18.284

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=3

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_D	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
NO3_N_D	2	2.050000	0.212132	0.045000	4.100000	0.045000	1.900000	2.200000	10.348
PO_D	2	55.000000	0.0	0.0	110.000000	0.0	55.000000	55.000000	0.0
SIOTFE_D	2	0.090000	0.0	0.0	0.180000	0.0	0.090000	0.090000	0.0
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TC_D	2	60.000000	0.0	0.0	120.000000	0.0	60.000000	60.000000	0.0
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=4

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
SEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
POPLK	2	413.000000	1.414214	2.000000	826.000000	2.000000	412.000000	414.000000	0.342
PHS_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	115.000000	1.414214	2.000000	230.000000	2.000000	114.000000	116.000000	1.230
CC	2	23.000000	9.899495	98.000000	46.000000	98.000000	16.000000	30.000000	43.041
CL	2	4.000000	5.656854	32.000000	8.000000	32.000000	0.0	8.000000	141.421
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.245000	0.077782	0.006050	0.490000	0.006050	0.190000	0.300000	31.748
HARD	2	520.000000	14.142136	200.000000	1040.000000	200.000000	510.000000	530.000000	2.720
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
PO	2	57.000000	1.414214	2.000000	114.000000	2.000000	56.000000	58.000000	2.481
NO3_N	2	1.100000	0.0	0.0	2.200000	0.0	1.100000	1.100000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.305000	0.077782	0.006050	0.610000	0.006050	0.250000	0.360000	25.502
COLOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
TPO4_P	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
K	2	1.850000	0.070711	0.005000	3.700000	0.005000	1.800000	1.900000	3.822
SI	2	9.500000	0.0	0.0	19.000000	0.0	9.500000	9.500000	0.0
DISMAT	2	823.000000	5.656854	32.000000	1646.000000	32.000000	819.000000	827.000000	0.687
SUSMAT	2	13.500000	6.363961	40.500000	27.000000	40.500000	9.000000	18.000000	47.140
SP_COND	0								
SO4_S	2	85.500000	2.121320	4.500000	171.000000	4.500000	84.000000	87.000000	2.481
TURB	2	4.500000	0.707107	0.500000	9.000000	0.500000	4.000000	5.000000	15.713
CLC	2	19.000000	0.0	0.0	38.000000	0.0	19.000000	19.000000	0.0
SIO2	2	20.320500	0.0	0.0	40.641000	0.0	20.320500	20.320500	0.0
SO4	2	256.158000	6.355476	40.392072	512.316000	40.392072	251.664000	260.652000	2.481
TPO4	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
PO4	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	4.869480	0.0	0.0	9.738960	0.0	4.869480	4.869480	0.0
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	256.158000	6.355476	40.392072	512.316000	40.392072	251.664000	260.652000	2.481
TPO4_D	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
PO4_D	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	4.869480	0.0	0.0	9.738960	0.0	4.869480	4.869480	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	4.500000	0.707107	0.500000	9.000000	0.500000	4.000000	5.000000	15.713
SI_D	2	9.500000	0.0	0.0	19.000000	0.0	9.500000	9.500000	0.0
K_D	2	1.850000	0.070711	0.005000	3.700000	0.005000	1.800000	1.900000	3.822
CL_D	2	4.000000	5.656854	32.000000	8.000000	32.000000	0.0	8.000000	141.421
SIO2_D	2	20.320500	0.0	0.0	40.641000	0.0	20.320500	20.320500	0.0
CA_D	2	115.000000	1.414214	2.000000	230.000000	2.000000	114.000000	116.000000	1.230
SO4_S_D	2	85.500000	2.121320	4.500000	171.000000	4.500000	84.000000	87.000000	2.481
SUSMAT_D	2	13.500000	6.363961	40.500000	27.000000	40.500000	9.000000	18.000000	47.140
TPO4_P_D	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
PO4_P_D	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
N_D	2	0.305000	0.077782	0.006050	0.610000	0.006050	0.250000	0.360000	25.502

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=4

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N_D	2	1.100000	0.0	0.0	2.200000	0.0	1.100000	1.100000	0.0
PO_4	2	57.000000	1.414214	2.000000	114.000000	2.000000	56.000000	58.000000	2.481
TOTFE_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EC_D	2	23.000000	9.899495	98.000000	46.000000	98.000000	16.000000	30.000000	43.041
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=5

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
P_ALK	2	383.000000	0.0	0.0	766.000000	0.0	383.000000	383.000000	0.0
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	108.000000	0.0	0.0	216.000000	0.0	108.000000	108.000000	0.0
MG	2	30.000000	2.828427	8.000000	60.000000	8.000000	28.000000	32.000000	9.428
CL	2	12.000000	0.0	0.0	24.000000	0.0	12.000000	12.000000	0.0
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.420000	0.0	0.0	0.840000	0.0	0.420000	0.420000	0.0
HARD	2	590.000000	0.0	0.0	1180.000000	0.0	590.000000	590.000000	0.0
NITRE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
NITRE	2	0.050000	0.042426	0.001800	0.100000	0.001800	0.020000	0.080000	84.853
PH	2	78.000000	0.0	0.0	156.000000	0.0	78.000000	78.000000	0.0
NH3_N	2	0.500000	0.0	0.0	1.000000	0.0	0.500000	0.500000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
K	2	0.240000	0.042426	0.001800	0.480000	0.001800	0.210000	0.270000	17.678
COLOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
N	2	3.950000	0.070711	0.005000	7.900000	0.005000	3.900000	4.000000	1.790
CL	2	3.000000	0.282843	0.080000	6.000000	0.080000	2.800000	3.200000	9.428
DISMAT	0								
SUSMAT	2	14.000000	2.828427	8.000000	28.000000	8.000000	12.000000	16.000000	20.203
SP_COND	0								
SO4_S	2	139.500000	13.435029	180.500000	279.000000	180.500000	130.000000	149.000000	9.631
TURB	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
COC	2	24.000000	0.0	0.0	48.000000	0.0	24.000000	24.000000	0.0
SIO2	2	6.417000	0.605001	0.366026	12.834000	0.366026	5.989200	6.844800	9.428
SO4	2	417.942000	40.251346	1620.170888	835.884000	1620.170888	389.480000	446.404000	9.631
TPO4	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	2.213400	0.000000	0.000000	4.426800	0.000000	2.213400	2.213400	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	417.942000	40.251346	1620.170888	835.884000	1620.170888	389.480000	446.404000	9.631
TPO4_D	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	2.213400	0.000000	0.000000	4.426800	0.000000	2.213400	2.213400	0.000
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
SI_D	2	3.000000	0.282843	0.080000	6.000000	0.080000	2.800000	3.200000	9.428
N_D	2	3.950000	0.070711	0.005000	7.900000	0.005000	3.900000	4.000000	1.790
CL_D	2	12.000000	0.0	0.0	24.000000	0.0	12.000000	12.000000	0.0
SIO2_D	2	6.417000	0.605001	0.366026	12.834000	0.366026	5.989200	6.844800	9.428
CA_D	2	108.000000	0.0	0.0	216.000000	0.0	108.000000	108.000000	0.0
SO4_S_D	2	139.500000	13.435029	180.500000	279.000000	180.500000	130.000000	149.000000	9.631
SUSMAT_D	2	14.000000	2.828427	8.000000	28.000000	8.000000	12.000000	16.000000	20.203
TPO4_P_D	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K_D	2	0.240000	0.042426	0.001800	0.480000	0.001800	0.210000	0.270000	17.678

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=5

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N_D	2	0.500000	0.0	0.0	1.000000	0.0	0.500000	0.500000	0.0
PO4_D	2	78.000000	0.0	0.0	156.000000	0.0	78.000000	78.000000	0.0
TOTFE_D	2	0.050000	0.042426	0.001800	0.100000	0.001800	0.020000	0.080000	84.853
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TC_D	2	30.000000	2.828427	8.000000	60.000000	8.000000	28.000000	32.000000	9.428
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=7

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
M_ALK	2	274.000000	29.698485	882.000000	548.000000	882.000000	253.000000	295.000000	10.839
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	83.500000	0.707107	0.500000	167.000000	0.500000	83.000000	84.000000	0.847
TC	2	21.000000	4.242641	18.000000	42.000000	18.000000	18.000000	24.000000	20.203
CL	2	11.500000	0.707107	0.500000	23.000000	0.500000	11.000000	12.000000	6.149
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.300000	0.0	0.0	0.600000	0.0	0.300000	0.300000	0.0
FARD	2	440.000000	0.0	0.0	880.000000	0.0	440.000000	440.000000	0.0
SELFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
T_TFE	2	0.140000	0.014142	0.000200	0.280000	0.000200	0.130000	0.150000	10.102
MG	2	56.000000	0.0	0.0	112.000000	0.0	56.000000	56.000000	0.0
NO3_N	2	0.750000	0.212132	0.045000	1.500000	0.045000	0.600000	0.900000	28.284
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.240000	0.028284	0.000800	0.480000	0.000800	0.220000	0.260000	11.785
ODLR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
K	2	2.100000	0.141421	0.020000	4.200000	0.020000	2.000000	2.200000	6.734
SI	2	8.900000	0.000000	0.000000	17.800000	0.000000	8.900000	8.900000	0.000
SIO2AT	2	696.500000	16.263456	264.500000	1393.000000	264.500000	685.000000	708.000000	2.335
SO4AT	2	55.000000	22.627417	512.000000	110.000000	512.000000	39.000000	71.000000	41.141
SP_COND	0								
SO4_S	2	87.500000	0.707107	0.500000	175.000000	0.500000	87.000000	88.000000	0.808
TURB	2	20.000000	0.0	0.0	40.000000	0.0	20.000000	20.000000	0.0
TSC	2	16.000000	0.0	0.0	32.000000	0.0	16.000000	16.000000	0.0
SIO2	2	19.037100	0.0	0.0	38.074200	0.0	19.037100	19.037100	0.0
SO4	2	262.150000	2.118492	4.488008	524.300000	4.488008	260.652000	263.648000	0.808
TPO4	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	3.320100	0.939066	0.881845	6.640200	0.881845	2.656080	3.984120	28.284
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	262.150000	2.118492	4.488008	524.300000	4.488008	260.652000	263.648000	0.808
TPO4_D	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	3.320100	0.939066	0.881845	6.640200	0.881845	2.656080	3.984120	28.284
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOFE_D	2	20.000000	0.0	0.0	40.000000	0.0	20.000000	20.000000	0.0
SI_D	2	8.900000	0.000000	0.000000	17.800000	0.000000	8.900000	8.900000	0.000
K_D	2	2.100000	0.141421	0.020000	4.200000	0.020000	2.000000	2.200000	6.734
CL_D	2	11.500000	0.707107	0.500000	23.000000	0.500000	11.000000	12.000000	6.149
SIO2_D	2	19.037100	0.0	0.0	38.074200	0.0	19.037100	19.037100	0.0
CA_D	2	83.500000	0.707107	0.500000	167.000000	0.500000	83.000000	84.000000	0.847
SO4_S_D	2	87.500000	0.707107	0.500000	175.000000	0.500000	87.000000	88.000000	0.808
SO4AT_D	2	55.000000	22.627417	512.000000	110.000000	512.000000	39.000000	71.000000	41.141
TPO4_P_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.240000	0.028284	0.000800	0.480000	0.000800	0.220000	0.260000	11.785

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=7

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NH2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N_D	2	0.750000	0.212132	0.045000	1.500000	0.045000	0.600000	0.900000	28.284
MG_D	2	56.000000	0.0	0.0	112.000000	0.0	56.000000	56.000000	0.0
TOTFE_D	2	0.140000	0.014142	0.000200	0.280000	0.000200	0.130000	0.150000	10.102
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO_4	2	21.000000	4.242641	18.000000	42.000000	18.000000	18.000000	24.000000	20.203
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=8

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
REP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
M'ALK	2	357.500000	10.606602	112.500000	715.000000	112.500000	350.000000	365.000000	2.967
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	88.000000	0.0	0.0	176.000000	0.0	88.000000	88.000000	0.0
SC	2	28.000000	0.0	0.0	56.000000	0.0	28.000000	28.000000	0.0
CL	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
CHLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.310000	0.014142	0.000200	0.620000	0.000200	0.300000	0.320000	4.562
HARD	2	440.000000	0.0	0.0	880.000000	0.0	440.000000	440.000000	0.0
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
MG	2	53.000000	0.0	0.0	106.000000	0.0	53.000000	53.000000	0.0
NO3_N	2	0.950000	0.070711	0.005000	1.900000	0.005000	0.900000	1.000000	7.443
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
P	2	0.125000	0.035355	0.001250	0.250000	0.001250	0.100000	0.150000	28.284
ODOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TPO4_P	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
K	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
NA	2	4.400000	0.424264	0.180000	8.800000	0.180000	4.100000	4.700000	9.642
DISMAT	2	679.000000	8.485281	72.000000	1358.000000	72.000000	673.000000	685.000000	1.250
SUSMAT	2	21.500000	23.334524	544.500000	43.000000	544.500000	5.000000	38.000000	108.533
SP_COND	0								
SO4_S	2	69.000000	1.414214	2.000000	138.000000	2.000000	68.000000	70.000000	2.050
TURB	2	1.000000	0.0	0.0	2.000000	0.0	1.000000	1.000000	0.0
DFC	2	20.000000	4.242641	18.000000	40.000000	18.000000	17.000000	23.000000	21.213
SIO2	2	9.411600	0.907501	0.823558	18.823200	0.823558	8.769900	10.053300	9.642
SO4	2	206.724000	4.236984	17.952032	413.448000	17.952032	203.728000	209.720000	2.050
TPO4	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
PO4	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	4.205460	0.313022	0.097983	8.410920	0.097983	3.984120	4.426800	7.443
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	206.724000	4.236984	17.952032	413.448000	17.952032	203.728000	209.720000	2.050
TPO4_D	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
PO4_D	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	4.205460	0.313022	0.097983	8.410920	0.097983	3.984120	4.426800	7.443
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	1.000000	0.0	0.0	2.000000	0.0	1.000000	1.000000	0.0
SI_D	2	4.400000	0.424264	0.180000	8.800000	0.180000	4.100000	4.700000	9.642
K_D	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
CL_D	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
SIO2_D	2	9.411600	0.907501	0.823558	18.823200	0.823558	8.769900	10.053300	9.642
CA_D	2	88.000000	0.0	0.0	176.000000	0.0	88.000000	88.000000	0.0
SO4_S_D	2	69.000000	1.414214	2.000000	138.000000	2.000000	68.000000	70.000000	2.050
SUSMAT_D	2	21.500000	23.334524	544.500000	43.000000	544.500000	5.000000	38.000000	108.533
TPO4_P_D	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
PO4_P_D	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
K_D	2	0.075000	0.106066	0.011250	0.150000	0.011250	0.0	0.150000	141.421

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=8

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.950000	0.070711	0.005000	1.900000	0.005000	0.900000	1.000000	7.443
[illegible]	2	53.000000	0.0	0.0	106.000000	0.0	53.000000	53.000000	0.0
[illegible]	2	0.010000	0.014142	0.000200	0.020000	0.000200	0.0	0.020000	141.421
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	28.000000	0.0	0.0	56.000000	0.0	28.000000	28.000000	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=9

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
KEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
MEPEK	2	370.000000	4.242641	18.000000	740.000000	18.000000	367.000000	373.000000	1.147
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	94.000000	1.414214	2.000000	188.000000	2.000000	93.000000	95.000000	1.504
TC	2	26.000000	0.0	0.0	52.000000	0.0	26.000000	26.000000	0.0
CL	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.310000	0.014142	0.000200	0.620000	0.000200	0.300000	0.320000	4.562
MPN	2	475.000000	7.071068	50.000000	950.000000	50.000000	470.000000	480.000000	1.489
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.065000	0.007071	0.000050	0.130000	0.000050	0.060000	0.070000	10.879
MG	2	58.000000	0.0	0.0	116.000000	0.0	58.000000	58.000000	0.0
NO3_N	2	0.650000	0.070711	0.005000	1.300000	0.005000	0.600000	0.700000	8.319
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
P	2	0.270000	0.014142	0.000200	0.540000	0.000200	0.260000	0.280000	5.238
OCLR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.030000	0.014142	0.000200	0.060000	0.000200	0.020000	0.040000	47.140
P	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
SI	2	4.600000	0.141421	0.020000	9.200000	0.020000	4.500000	4.700000	3.074
DISMAT	2	802.500000	7.778175	60.500000	1605.000000	60.500000	797.000000	808.000000	0.969
SUSMAT	2	4.500000	0.707107	0.500000	9.000000	0.500000	4.000000	5.000000	15.713
SP_COND	0								
SO4_S	2	90.000000	2.828427	8.000000	180.000000	8.000000	88.000000	92.000000	3.143
TOTB	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
DOC	2	21.000000	2.828427	8.000000	42.000000	8.000000	19.000000	23.000000	13.469
SIO2	2	9.639400	0.302500	0.091506	19.278800	0.091506	9.625500	10.053300	3.074
SO4	2	269.640000	8.473968	71.808128	539.280000	71.808128	263.648300	275.632000	3.143
TPO4	2	0.091800	0.043275	0.001873	0.183600	0.001873	0.061200	0.122400	47.140
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	3.762780	0.313022	0.097983	7.525560	0.097983	3.541440	3.984120	8.319
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	269.640009	8.473968	71.808128	539.280000	71.808128	263.648300	275.632000	3.143
TPO4_D	2	0.091800	0.043275	0.001873	0.183600	0.001873	0.061200	0.122400	47.140
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	3.762780	0.313022	0.097983	7.525560	0.097983	3.541440	3.984120	8.319
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTB_D	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
SI_D	2	4.600000	0.141421	0.020000	9.200000	0.020000	4.500000	4.700000	3.074
K_D	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
CL_D	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
SIO2_D	2	9.639400	0.302500	0.091506	19.278800	0.091506	9.625500	10.053300	3.074
CA_D	2	94.000000	1.414214	2.000000	188.000000	2.000000	93.000000	95.000000	1.504
SO4_S_D	2	90.000000	2.828427	8.000000	180.000000	8.000000	88.000000	92.000000	3.143
SUSMAT_D	2	4.500000	0.707107	0.500000	9.000000	0.500000	4.000000	5.000000	15.713
TPO4_P_D	2	0.030000	0.014142	0.000200	0.060000	0.000200	0.020000	0.040000	47.140
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.270000	0.014142	0.000200	0.540000	0.000200	0.260000	0.280000	5.238

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=9

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N_D	2	0.850000	0.070711	0.005000	1.700000	0.005000	0.800000	0.900000	8.319
MG_D	2	58.000000	0.0	0.0	116.000000	0.0	58.000000	58.000000	0.0
TOTPE_D	2	0.065000	0.007071	0.000050	0.130000	0.000050	0.060000	0.070000	10.879
SOLPE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CL_D	2	26.000000	0.0	0.0	52.000000	0.0	26.000000	26.000000	0.0
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=13

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
TOALK	2	387.000000	0.0	0.0	774.000000	0.0	387.000000	387.000000	0.0
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	88.000000	0.0	0.0	176.000000	0.0	88.000000	88.000000	0.0
CL	2	18.000000	0.0	0.0	36.000000	0.0	18.000000	18.000000	0.0
SIL	2	8.000000	0.0	0.0	16.000000	0.0	8.000000	8.000000	0.0
COLTP	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.400000	0.0	0.0	0.800000	0.0	0.400000	0.400000	0.0
MASS	2	470.000000	0.0	0.0	940.000000	0.0	470.000000	470.000000	0.0
SLUFF	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.030000	0.014142	0.000200	0.060000	0.000200	0.020000	0.040000	47.140
MG	2	60.000000	0.0	0.0	120.000000	0.0	60.000000	60.000000	0.0
NO3_N	2	0.650000	0.212132	0.045000	1.300000	0.045000	0.500000	0.800000	32.636
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.230000	0.0	0.0	0.460000	0.0	0.230000	0.230000	0.0
COD2	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
TPO4_P	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
K	2	2.600000	0.000000	0.000000	5.200000	0.000000	2.600000	2.600000	0.000
SI	2	4.550000	0.353553	0.125000	9.100000	0.125000	4.300000	4.800000	7.770
BICMAT	2	831.000000	1.414214	2.000000	1662.000000	2.000000	830.000000	832.000000	0.170
SUSMAT	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
SP_COND	0								
SO4_S	2	91.000000	1.414214	2.000000	182.000000	2.000000	90.000000	92.000000	1.554
TOPB	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
TAC	2	21.000000	2.828427	8.000000	42.000000	8.000000	19.000000	23.000000	13.469
SIO2	2	9.732450	0.756251	0.571915	19.464900	0.571915	9.197700	10.267200	7.770
SO4	2	272.636000	4.236984	17.952032	545.272000	17.952032	269.640000	275.632000	1.554
TPO4	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
PO4	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	2.277420	0.939066	0.881845	5.754840	0.881845	2.213400	3.541440	32.636
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	272.636000	4.236984	17.952032	545.272000	17.952032	269.640000	275.632000	1.554
TPO4_D	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
PO4_D	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	2.277420	0.939066	0.881845	5.754840	0.881845	2.213400	3.541440	32.636
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOKN_D	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
SI_D	2	4.550000	0.353553	0.125000	9.100000	0.125000	4.300000	4.800000	7.770
K_D	2	2.600000	0.000000	0.000000	5.200000	0.000000	2.600000	2.600000	0.000
CL_D	2	8.000000	0.0	0.0	16.000000	0.0	8.000000	8.000000	0.0
SIO2_D	2	9.732450	0.756251	0.571915	19.464900	0.571915	9.197700	10.267200	7.770
CA_D	2	88.000000	0.0	0.0	176.000000	0.0	88.000000	88.000000	0.0
SO4_S_D	2	91.000000	1.414214	2.000000	182.000000	2.000000	90.000000	92.000000	1.554
SUSMAT_D	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
TPO4_P_D	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
PO4_P_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
N_D	2	0.230000	0.0	0.0	0.460000	0.0	0.230000	0.230000	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=13

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.650000	0.212132	0.045000	1.300000	0.045000	0.500000	0.800000	32.636
[illegible]	2	60.000000	0.0	0.0	120.000000	0.0	60.000000	60.000000	0.0
[illegible]	2	0.030000	0.014142	0.000200	0.060000	0.000200	0.020000	0.040000	47.140
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	18.000000	0.0	0.0	36.000000	0.0	18.000000	18.000000	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=14

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
DEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
WIDTH	2	455.000000	2.828427	8.000000	910.000000	8.000000	453.000000	457.000000	0.622
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	111.500000	4.949747	24.500000	223.000000	24.500000	108.000000	115.000000	4.439
CO	2	33.000000	1.414214	2.000000	66.000000	2.000000	32.000000	34.000000	4.285
CL	2	16.000000	0.0	0.0	32.000000	0.0	16.000000	16.000000	0.0
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.320000	0.0	0.0	0.640000	0.0	0.320000	0.320000	0.0
HARD	2	665.000000	21.213203	450.000000	1330.000000	450.000000	650.000000	680.000000	3.190
SELFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TLTFE	2	0.035000	0.021213	0.000450	0.070000	0.000450	0.020000	0.050000	60.609
MG	2	94.000000	1.414214	2.000000	188.000000	2.000000	93.000000	95.000000	1.504
NO2_N	2	0.800000	0.141421	0.020000	1.600000	0.020000	0.700000	0.900000	17.678
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
P	2	0.420000	0.042426	0.001800	0.840000	0.001800	0.390000	0.450000	10.102
ODOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
K	2	3.900000	0.141421	0.020000	7.800000	0.020000	3.800000	4.000000	3.626
SI	2	3.250000	0.212132	0.045000	6.500000	0.045000	3.100000	3.400000	6.527
DISMAT	0								
SUSMAT	2	7.500000	2.121320	4.500000	15.000000	4.500000	6.000000	9.000000	28.284
SP_COND	0								
SO4_S	2	153.000000	1.414214	2.000000	306.000000	2.000000	152.000000	154.000000	0.924
TURB	2	1.000000	0.0	0.0	2.000000	0.0	1.000000	1.000000	0.0
TIC	2	19.000000	2.828427	8.000000	38.000000	8.000000	17.000000	21.000000	14.886
SIO2	2	6.951750	0.453750	0.205889	13.903500	0.205889	6.630900	7.272600	6.527
SO4	2	456.384000	4.236984	17.952032	916.776000	17.952032	455.392000	461.384000	0.924
TPO4	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	3.541440	0.626044	0.391931	7.082880	0.391931	3.098760	3.984120	17.678
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	456.384000	4.236984	17.952032	916.776000	17.952032	455.392000	461.384000	0.924
TPO4_D	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	3.541440	0.626044	0.391931	7.082880	0.391931	3.098760	3.984120	17.678
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	1.000000	0.0	0.0	2.000000	0.0	1.000000	1.000000	0.0
SI_D	2	3.250000	0.212132	0.045000	6.500000	0.045000	3.100000	3.400000	6.527
K_D	2	3.900000	0.141421	0.020000	7.800000	0.020000	3.800000	4.000000	3.626
CL_D	2	16.000000	0.0	0.0	32.000000	0.0	16.000000	16.000000	0.0
SIO2_D	2	6.951750	0.453750	0.205889	13.903500	0.205889	6.630900	7.272600	6.527
CA_D	2	111.500000	4.949747	24.500000	223.000000	24.500000	108.000000	115.000000	4.439
SO4_S_D	2	153.000000	1.414214	2.000000	306.000000	2.000000	152.000000	154.000000	0.924
SUSMAT_D	2	7.500000	2.121320	4.500000	15.000000	4.500000	6.000000	9.000000	28.284
TPO4_P_D	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.420000	0.042426	0.001800	0.840000	0.001800	0.390000	0.450000	10.102

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=14

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.800000	0.141421	0.020000	1.600000	0.020000	0.700000	0.900000	17.678
[illegible]	2	94.000000	1.414214	2.000000	188.000000	2.000000	93.000000	95.000000	1.504
[illegible]	2	0.035000	0.021213	0.000450	0.070000	0.000450	0.020000	0.050000	60.609
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	33.000000	1.414214	2.000000	66.000000	2.000000	32.000000	34.000000	4.285
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=19

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
M_ALK	2	747.500000	20.506097	420.500000	1495.000000	420.500000	733.000000	762.000000	2.743
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	67.000000	7.071068	50.000000	134.000000	50.000000	62.000000	72.000000	10.554
EC	2	55.000000	7.071068	50.000000	110.000000	50.000000	50.000000	60.000000	12.856
CL	2	22.500000	6.363961	40.500000	45.000000	40.500000	18.000000	27.000000	19.581
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.440000	0.028284	0.000800	0.920000	0.000800	0.440000	0.480000	6.149
HARD	2	875.000000	35.355339	1250.000000	1750.000000	1250.000000	850.000000	900.000000	4.041
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.125000	0.077782	0.006050	0.250000	0.006050	0.070000	0.180000	62.225
PO	2	173.000000	4.242641	18.000000	346.000000	18.000000	170.000000	176.000000	2.452
NH3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.270000	0.014142	0.000200	0.540000	0.000200	0.260000	0.280000	5.238
HCOP	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TPO4_P	2	0.040000	0.000000	0.000000	0.080000	0.000000	0.040000	0.040000	0.000
P	2	8.500000	0.424264	0.180000	17.000000	0.180000	8.200000	8.800000	4.991
SI	2	7.800000	0.0	0.0	15.600000	0.0	7.800000	7.800000	0.0
CHLPAT	0								
SUSPAT	2	11.000000	5.656854	32.000000	22.000000	32.000000	7.000000	15.000000	51.426
SP_COND	0								
SO4_S	2	292.500000	4.949747	24.500000	585.000000	24.500000	289.000000	296.000000	1.692
TURB	2	3.000000	1.414214	2.000000	6.000000	2.000000	2.000000	4.000000	47.140
COC	2	48.500000	0.707107	0.500000	97.000000	0.500000	48.000000	49.000000	1.458
SIO2	2	16.684200	0.0	0.0	33.368400	0.0	16.684200	16.684200	0.0
SO4	2	876.330000	14.829443	219.912392	1752.660000	219.912392	865.844000	886.816000	1.692
TPO4	2	0.122400	0.0	0.0	0.244800	0.0	0.122400	0.122400	0.0
PO4	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	876.330000	14.829443	219.912392	1752.660000	219.912392	865.844000	886.816000	1.692
TPO4_D	2	0.122400	0.0	0.0	0.244800	0.0	0.122400	0.122400	0.0
PO4_D	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	3.000000	1.414214	2.000000	6.000000	2.000000	2.000000	4.000000	47.140
SI_D	2	7.800000	0.0	0.0	15.600000	0.0	7.800000	7.800000	0.0
K_D	2	8.500000	0.424264	0.180000	17.000000	0.180000	8.200000	8.800000	4.991
CL_D	2	42.500000	6.363961	40.500000	85.000000	40.500000	28.000000	37.000000	19.581
SIO2_D	2	16.684200	0.0	0.0	33.368400	0.0	16.684200	16.684200	0.0
CA_D	2	67.000000	7.071068	50.000000	134.000000	50.000000	62.000000	72.000000	10.554
SO4_S_D	2	292.500000	4.949747	24.500000	585.000000	24.500000	289.000000	296.000000	1.692
SUSPAT_D	2	11.000000	5.656854	32.000000	22.000000	32.000000	7.000000	15.000000	51.426
TPO4_P_D	2	0.040000	0.000000	0.000000	0.080000	0.000000	0.040000	0.040000	0.000
PO4_P_D	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
N_D	2	0.270000	0.014142	0.000200	0.540000	0.000200	0.260000	0.280000	5.238

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=19

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG_D	2	173.000000	4.242641	18.000000	346.000000	18.000000	170.000000	176.000000	2.452
TOTPE_D	2	0.125000	0.077782	0.006050	0.250000	0.006050	0.070000	0.180000	62.225
SOLPE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC_D	2	55.000000	7.071068	50.000000	110.000000	50.000000	50.000000	60.000000	12.856
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=20

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
FEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
M_ALK	2	1148.500000	7.778175	60.500000	2297.000000	60.500000	1143.000000	1154.000000	0.677
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	33.000000	1.414214	2.000000	66.000000	2.000000	32.000000	34.000000	4.285
CO	2	80.000000	14.142136	200.000000	160.000000	200.000000	70.000000	90.000000	17.678
CL	2	96.500000	0.707107	0.500000	193.000000	0.500000	96.000000	97.000000	0.733
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.440000	0.028284	0.000800	0.880000	0.000800	0.420000	0.460000	6.428
HARD	2	500.000000	0.0	0.0	1000.000000	0.0	500.000000	500.000000	0.0
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.245000	0.021213	0.000450	0.490000	0.000450	0.230000	0.260000	8.658
PH	2	102.000000	0.0	0.0	204.000000	0.0	102.000000	102.000000	0.0
NO3_N	2	1.400000	0.0	0.0	2.800000	0.0	1.400000	1.400000	0.0
P_2_A	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
S	2	0.420000	0.014142	0.000200	0.840000	0.000200	0.410000	0.430000	3.367
COLOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
K	2	6.350000	0.070711	0.005000	12.700000	0.005000	6.300000	6.400000	1.114
SI	2	4.600000	0.141421	0.020000	9.200000	0.020000	4.500000	4.700000	3.074
DISMAT	0								
SUSMAT	2	31.500000	4.949747	24.500000	63.000000	24.500000	28.000000	35.000000	15.713
SP_COND	0								
CA4_S	2	168.500000	6.363961	40.500000	337.000000	40.500000	164.000000	173.000000	3.777
TOC	2	12.000000	2.828427	8.000000	24.000000	8.000000	10.000000	14.000000	23.570
CO	2	42.500000	7.778175	60.500000	85.000000	60.500000	37.000000	48.000000	18.302
SIO2	2	9.859400	0.302500	0.091506	19.678800	0.091506	9.625500	10.093300	3.074
SO4	2	504.000000	19.060427	363.528648	1009.652000	363.528648	491.344000	518.300000	3.777
TPO4	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	6.197520	0.0	0.0	12.395040	0.0	6.197520	6.197520	0.0
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	504.000000	19.060427	363.528648	1009.652000	363.528648	491.344000	518.300000	3.777
TPO4_D	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3_D	2	6.197520	0.0	0.0	12.395040	0.0	6.197520	6.197520	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOC_D	2	12.000000	2.828427	8.000000	24.000000	8.000000	10.000000	14.000000	23.570
SI_D	2	4.600000	0.141421	0.020000	9.200000	0.020000	4.500000	4.700000	3.074
K_D	2	6.350000	0.070711	0.005000	12.700000	0.005000	6.300000	6.400000	1.114
CL_D	2	96.500000	0.707107	0.500000	193.000000	0.500000	96.000000	97.000000	0.733
SIO2_D	2	9.859400	0.302500	0.091506	19.678800	0.091506	9.625500	10.093300	3.074
CA_D	2	33.000000	1.414214	2.000000	66.000000	2.000000	32.000000	34.000000	4.285
SO4_S_D	2	168.500000	6.363961	40.500000	337.000000	40.500000	164.000000	173.000000	3.777
SUSMAT_D	2	31.500000	4.949747	24.500000	63.000000	24.500000	28.000000	35.000000	15.713
TPO4_P_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	0.420000	0.014142	0.000200	0.840000	0.000200	0.410000	0.430000	3.367

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=20

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
[illegible]	2	1.400000	0.0	0.0	2.800000	0.0	1.400000	1.400000	0.0
[illegible]	2	102.000000	0.0	0.0	204.000000	0.0	102.000000	102.000000	0.0
[illegible]	2	0.245000	0.021213	0.000450	0.490000	0.000450	0.230000	0.260000	8.658
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	80.000000	14.142136	200.000000	160.000000	200.000000	70.000000	90.000000	17.678
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=21

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
M_ALK	2	1158.500000	21.920310	480.500000	2317.000000	480.500000	1143.000000	1174.000000	1.892
NO3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	41.000000	1.414214	2.000000	82.000000	2.000000	40.000000	42.000000	3.449
MG	2	75.000000	7.071068	50.000000	150.000000	50.000000	70.000000	80.000000	9.428
CL	2	98.000000	2.828427	8.000000	196.000000	8.000000	96.000000	100.000000	2.886
CELL#	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	1.800000	0.0	0.0	3.600000	0.0	1.800000	1.800000	0.0
HARD	2	510.000000	14.142136	200.000000	1020.000000	200.000000	500.000000	520.000000	2.773
SELFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
T.ALFE	2	0.515000	0.275772	0.076050	1.030000	0.076050	0.320000	0.710000	53.548
PO	2	99.000000	1.414214	2.000000	198.000000	2.000000	98.000000	100.000000	1.428
NO3_N	2	1.550000	0.070711	0.005000	3.100000	0.005000	1.500000	1.600000	4.567
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.490000	0.014142	0.000200	0.980000	0.000200	0.480000	0.500000	2.946
DOCR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.080000	0.028284	0.000800	0.160000	0.000800	0.060000	0.100000	35.355
K	2	6.350000	0.070711	0.005000	12.700000	0.005000	6.300000	6.400000	1.114
SI	2	4.750000	0.070711	0.005000	9.500000	0.005000	4.700000	4.800000	1.489
DISMAT	0								
SUSMAT	2	74.000000	50.911688	2592.000000	148.000000	2592.000000	38.000000	110.000000	68.800
SP_COND	0								
SO4_S	2	173.000000	1.414214	2.000000	346.000000	2.000000	172.000000	174.000000	0.817
TURB	2	25.500000	21.213203	450.000000	50.000000	450.000000	10.000000	40.000000	84.853
D_C	2	52.500000	9.192388	84.500000	105.000000	84.500000	46.000000	59.000000	17.509
SIO2	2	10.160250	0.151250	0.022877	20.320500	0.022877	10.053300	10.267200	1.489
SO4	2	518.368000	4.236984	17.952032	1036.616000	17.952032	515.312000	521.304000	0.817
TPO4	2	0.244800	0.006550	0.007491	0.489600	0.007491	0.183600	0.306000	35.355
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	6.861540	0.313822	0.097983	13.723080	0.097983	6.640200	7.082880	4.562
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_S	2	515.308000	4.236984	17.952032	1036.616000	17.952032	515.312000	521.304000	0.817
TPO4_D	2	0.244800	0.006550	0.007491	0.489600	0.007491	0.183600	0.306000	35.355
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3_D	2	6.861540	0.313822	0.097983	13.723080	0.097983	6.640200	7.082880	4.562
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	25.000000	21.213203	450.000000	50.000000	450.000000	10.000000	40.000000	84.853
SI_D	2	4.750000	0.070711	0.005000	9.500000	0.005000	4.700000	4.800000	1.489
K_D	2	6.350000	0.070711	0.005000	12.700000	0.005000	6.300000	6.400000	1.114
CL_D	2	98.000000	2.828427	8.000000	196.000000	8.000000	96.000000	100.000000	2.886
SIO2_D	2	10.160250	0.151250	0.022877	20.320500	0.022877	10.053300	10.267200	1.489
CA_D	2	41.000000	1.414214	2.000000	82.000000	2.000000	40.000000	42.000000	3.449
SO4_S_D	2	173.000000	1.414214	2.000000	346.000000	2.000000	172.000000	174.000000	0.817
SUSMAT_D	2	74.000000	50.911688	2592.000000	148.000000	2592.000000	38.000000	110.000000	68.800
TPO4_P_D	2	0.080000	0.028284	0.000800	0.160000	0.000800	0.060000	0.100000	35.355
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.490000	0.014142	0.000200	0.980000	0.000200	0.470000	0.490000	2.946

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=21

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_I	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
NH3_N_I	2	1.550000	0.070711	0.005000	3.100000	0.005000	1.500000	1.600000	4.562
PO4_I	2	99.000000	1.414214	2.000000	198.000000	2.000000	98.000000	100.000000	1.428
TOTEL_I	2	0.515000	0.275772	0.076050	1.030000	0.076050	0.320000	0.710000	53.548
SOLFE_I	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC_I	2	75.000000	7.071068	50.000000	150.000000	50.000000	70.000000	80.000000	9.428
NH3_N_I	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=22

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
M ALK	2	1174.000000	0.0	0.0	2348.000000	0.0	1174.000000	1174.000000	0.0
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	41.500000	2.121320	4.500000	83.000000	4.500000	40.000000	43.000000	5.112
CC	2	75.000000	7.071068	50.000000	150.000000	50.000000	70.000000	80.000000	9.428
CL	2	105.000000	5.656854	32.000000	210.000000	32.000000	101.000000	109.000000	5.387
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	1.900000	0.0	0.0	3.800000	0.0	1.900000	1.900000	0.0
HARD	2	495.000000	7.071068	50.000000	990.000000	50.000000	490.000000	500.000000	1.428
SELFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.370000	0.042426	0.001800	0.740000	0.001800	0.340000	0.400000	11.467
PO	2	96.000000	0.0	0.0	192.000000	0.0	96.000000	96.000000	0.0
NO3_N	2	1.400000	0.0	0.0	2.800000	0.0	1.400000	1.400000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.485000	0.063640	0.004050	0.970000	0.004050	0.440000	0.530000	13.122
ODOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
K	2	6.450000	0.070711	0.005000	12.900000	0.005000	6.400000	6.500000	1.096
SI	2	4.050000	0.070711	0.005000	8.100000	0.005000	4.000000	4.100000	1.746
DISMAT	0								
SUSMAT	2	14.500000	19.091883	364.500000	29.000000	364.500000	1.000000	28.000000	131.668
SP_COND	0								
SO4_S	2	166.500000	4.949747	24.500000	333.000000	24.500000	163.000000	170.000000	2.973
TURB	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
UIC	2	54.000000	7.071068	50.000000	108.000000	50.000000	49.000000	59.000000	13.095
SIO2	2	8.662950	0.151250	0.022877	17.325900	0.022877	8.556000	8.769900	1.746
SO4	2	498.834000	14.829443	219.912392	997.668000	219.912392	488.348000	509.320000	2.973
TPO4	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PP4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	6.197520	0.0	0.0	12.395040	0.0	6.197520	6.197520	0.0
PH2	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	498.834000	14.829443	219.912392	997.668000	219.912392	488.348000	509.320000	2.973
TPO4_D	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3_D	2	6.197520	0.0	0.0	12.395040	0.0	6.197520	6.197520	0.0
PH2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
SI_D	2	4.050000	0.070711	0.005000	8.100000	0.005000	4.000000	4.100000	1.746
K_D	2	6.450000	0.070711	0.005000	12.900000	0.005000	6.400000	6.500000	1.096
CL_D	2	105.000000	5.656854	32.000000	210.000000	32.000000	101.000000	109.000000	5.387
SIO2_D	2	8.662950	0.151250	0.022877	17.325900	0.022877	8.556000	8.769900	1.746
CA_D	2	41.500000	2.121320	4.500000	83.000000	4.500000	40.000000	43.000000	5.112
SO4_S_D	2	166.500000	4.949747	24.500000	333.000000	24.500000	163.000000	170.000000	2.973
SUSMAT_D	2	14.000000	19.798990	392.000000	28.000000	392.000000	0.0	28.000000	141.421
TPO4_P_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.485000	0.063640	0.004050	0.970000	0.004050	0.440000	0.530000	13.122

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=22

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_D	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
NO3_N_D	2	1.400000	0.0	0.0	2.800000	0.0	1.400000	1.400000	0.0
PC_D	2	96.000000	0.0	0.0	192.000000	0.0	96.000000	96.000000	0.0
TOTFE_D	2	0.370000	0.042426	0.001800	0.740000	0.001800	0.340000	0.400000	11.467
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SC_D	2	75.000000	7.071068	50.000000	150.000000	50.000000	70.000000	80.000000	9.428
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=23

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
SEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
P_ALK	2	201.000000	1.414214	2.000000	402.000000	2.000000	200.000000	202.000000	0.704
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	72.000000	1.414214	2.000000	144.000000	2.000000	71.000000	73.000000	1.964
DC	2	12.500000	0.707107	0.500000	25.000000	0.500000	12.000000	13.000000	5.657
CL	2	33.500000	3.535534	12.500000	67.000000	12.500000	31.000000	36.000000	10.554
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.285000	0.021213	0.000450	0.570000	0.000450	0.270000	0.300000	7.443
HARD	2	285.000000	7.071068	50.000000	570.000000	50.000000	280.000000	290.000000	2.481
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.285000	0.148492	0.022050	0.570000	0.022050	0.180000	0.390000	52.103
MG	2	25.000000	0.0	0.0	50.000000	0.0	25.000000	25.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.180000	0.0	0.0	0.360000	0.0	0.180000	0.180000	0.0
COLOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
K	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
SI	2	2.400000	0.000000	0.000000	4.800000	0.000000	2.400000	2.400000	0.000
DISMAT	2	476.000000	2.828427	8.000000	952.000000	8.000000	474.000000	478.000000	0.594
SUSMAT	2	23.500000	9.192388	84.500000	47.000000	84.500000	17.000000	30.000000	39.117
SP_COND	2	745.000000	7.071068	50.000000	1490.000000	50.000000	740.000000	750.000000	0.949
SO4_S	2	52.000000	0.0	0.0	104.000000	0.0	52.000000	52.000000	0.0
TURB	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
DOC	2	17.000000	0.0	0.0	34.000000	0.0	17.000000	17.000000	0.0
SIO2	2	5.133600	0.0	0.0	10.267200	0.0	5.133600	5.133600	0.0
SO4	2	155.792000	0.000005	0.000000	311.584000	0.000000	155.792000	155.792000	0.000
TPO4	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	155.792000	0.000005	0.000000	311.584000	0.000000	155.792000	155.792000	0.000
TPO4_D	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
SI_D	2	2.400000	0.000000	0.000000	4.800000	0.000000	2.400000	2.400000	0.000
K_D	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
CL_D	2	33.500000	3.535534	12.500000	67.000000	12.500000	31.000000	36.000000	10.554
SIO2_D	2	5.133600	0.0	0.0	10.267200	0.0	5.133600	5.133600	0.0
CA_D	2	72.000000	1.414214	2.000000	144.000000	2.000000	71.000000	73.000000	1.964
SO4_S_D	2	52.000000	0.0	0.0	104.000000	0.0	52.000000	52.000000	0.0
SUSMAT_D	2	23.500000	9.192388	84.500000	47.000000	84.500000	17.000000	30.000000	39.117
TPO4_P_D	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.180000	0.0	0.0	0.360000	0.0	0.180000	0.180000	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=23

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_D	2	25.000000	0.0	0.0	50.000000	0.0	25.000000	25.000000	0.0
TOTPE_D	2	0.285000	0.148492	0.022050	0.570000	0.022050	0.180000	0.390000	52.103
SOLPE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO_D	2	12.500000	0.707107	0.500000	25.000000	0.500000	12.000000	13.000000	5.657
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=24

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
ALALK	2	182.000000	7.071068	50.000000	364.000000	50.000000	177.000000	187.000000	3.885
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	74.000000	4.242641	18.000000	148.000000	18.000000	71.000000	77.000000	5.733
FE	2	15.000000	0.0	0.0	30.000000	0.0	15.000000	15.000000	0.0
CL	2	30.000000	2.828427	8.000000	60.000000	8.000000	28.000000	32.000000	9.428
CLLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.250000	0.0	0.0	0.500000	0.0	0.250000	0.250000	0.0
HARD	2	275.000000	7.071068	50.000000	550.000000	50.000000	270.000000	280.000000	2.571
SILTE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.230000	0.084853	0.007200	0.460000	0.007200	0.170000	0.290000	36.893
PO	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
ORGP	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
K	2	2.400000	0.000000	0.000000	4.800000	0.000000	2.400000	2.400000	0.000
SI	2	5.700000	0.0	0.0	11.400000	0.0	5.700000	5.700000	0.0
DISMAT	2	456.000000	1.414214	2.000000	912.000000	2.000000	455.000000	457.000000	0.310
SUSMAT	2	18.000000	2.828427	8.000000	36.000000	8.000000	16.000000	20.000000	15.713
SP_COND	2	615.000000	0.0	0.0	1230.000000	0.0	615.000000	615.000000	0.0
SO4_S	2	49.500000	0.707107	0.500000	99.000000	0.500000	49.000000	50.000000	1.428
TURB	2	8.000000	0.0	0.0	16.000000	0.0	8.000000	8.000000	0.0
COC	2	15.000000	0.0	0.0	30.000000	0.0	15.000000	15.000000	0.0
SIO2	2	12.192300	0.000000	0.000000	24.384600	0.000000	12.192300	12.192300	0.000
SO4	2	148.302000	2.118492	4.488008	296.604000	4.488008	146.804000	149.800000	1.428
TPO4	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	148.302000	2.118492	4.488008	296.604000	4.488008	146.804000	149.800000	1.428
TPO4_D	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	8.000000	0.0	0.0	16.000000	0.0	8.000000	8.000000	0.0
SI_D	2	5.700000	0.0	0.0	11.400000	0.0	5.700000	5.700000	0.0
K_D	2	2.400000	0.000000	0.000000	4.800000	0.000000	2.400000	2.400000	0.000
CL_D	2	30.000000	2.828427	8.000000	60.000000	8.000000	28.000000	32.000000	9.428
SIO2_D	2	12.192300	0.000000	0.000000	24.384600	0.000000	12.192300	12.192300	0.000
CA_D	2	74.000000	4.242641	18.000000	148.000000	18.000000	71.000000	77.000000	5.733
SO4_S_D	2	49.500000	0.707107	0.500000	99.000000	0.500000	49.000000	50.000000	1.428
SUSMAT_D	2	18.000000	2.828427	8.000000	36.000000	8.000000	16.000000	20.000000	15.713
TPO4_P_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=24

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_D	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
TOTPE_C	2	0.230000	0.084853	0.007200	0.460000	0.007200	0.170000	0.290000	36.893
SOLPE_C	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TC_C	2	13.000000	0.0	0.0	26.000000	0.0	13.000000	13.000000	0.0
NH3_N_C	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=25

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
SEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
P_ALK	2	180.000000	7.071068	50.000000	360.000000	50.000000	175.000000	185.000000	3.928
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	72.000000	0.0	0.0	144.000000	0.0	72.000000	72.000000	0.0
MG	2	13.000000	1.414214	2.000000	26.000000	2.000000	12.000000	14.000000	10.879
CL	2	32.000000	0.0	0.0	64.000000	0.0	32.000000	32.000000	0.0
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
K	2	2.300000	0.0	0.0	0.460000	0.0	0.230000	0.230000	0.0
HARD	2	270.000000	0.0	0.0	540.000000	0.0	270.000000	270.000000	0.0
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
IRON	2	0.215000	0.007071	0.000050	0.430000	0.000050	0.210000	0.220000	3.289
PO	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
P	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
COLOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
P	2	2.400000	0.141421	0.020000	4.800000	0.020000	2.300000	2.500000	5.893
CL	2	5.700000	0.0	0.0	11.400000	0.0	5.700000	5.700000	0.0
DISMAT	2	455.000000	4.242641	18.000000	910.000000	18.000000	452.000000	458.000000	0.932
SUSMAT	2	20.000000	1.414214	2.000000	40.000000	2.000000	19.000000	21.000000	7.071
SP_CONC	2	640.000000	28.284271	800.000000	1280.000000	800.000000	620.000000	660.000000	4.419
SO4_S	2	52.000000	0.0	0.0	104.000000	0.0	52.000000	52.000000	0.0
TURB	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
CLC	2	14.000000	1.414214	2.000000	28.000000	2.000000	13.000000	15.000000	10.102
SIO2	2	12.192300	0.000000	0.000000	24.384600	0.000000	12.192300	12.192300	0.000
SO4	2	155.792000	0.000005	0.000000	311.584000	0.000000	155.792000	155.792000	0.000
TPO4	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	155.792000	0.000005	0.000000	311.584000	0.000000	155.792000	155.792000	0.000
TPO4_D	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
SI_D	2	5.700000	0.0	0.0	11.400000	0.0	5.700000	5.700000	0.0
K_D	2	2.400000	0.141421	0.020000	4.800000	0.020000	2.300000	2.500000	5.893
CL_D	2	32.000000	0.0	0.0	64.000000	0.0	32.000000	32.000000	0.0
SIO2_D	2	12.192300	0.000000	0.000000	24.384600	0.000000	12.192300	12.192300	0.000
CA_D	2	72.000000	0.0	0.0	144.000000	0.0	72.000000	72.000000	0.0
SO4_S_D	2	52.000000	0.0	0.0	104.000000	0.0	52.000000	52.000000	0.0
SUSMAT_D	2	20.000000	1.414214	2.000000	40.000000	2.000000	19.000000	21.000000	7.071
TPO4_P_D	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=25

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG_D	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
TOTFE_D	2	0.215000	0.007071	0.000050	0.430000	0.000050	0.210000	0.220000	3.289
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MO_D	2	13.000000	1.414214	2.000000	26.000000	2.000000	12.000000	14.000000	10.879
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=26

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
REP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
MCALK	2	198.000000	8.485281	72.000000	396.000000	72.000000	192.000000	204.000000	4.285
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	71.000000	1.414214	2.000000	142.000000	2.000000	70.000000	72.000000	1.992
CL	2	31.500000	0.707107	0.500000	25.000000	0.500000	12.000000	13.000000	5.657
COLIF	2	2.500000	0.0	0.0	63.000000	0.500000	31.000000	32.000000	2.245
F	2	0.230000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
HARD	2	270.000000	0.0	0.0	0.460000	0.0	0.230000	0.230000	0.0
SOLFE	2	0.020000	0.0	0.0	540.000000	0.0	270.000000	270.000000	0.0
TOTFE	2	0.245000	0.035355	0.001250	0.040000	0.0	0.020000	0.020000	0.0
PG	2	22.000000	0.0	0.0	0.490000	0.001250	0.220000	0.270000	14.431
NO3_N	2	0.200000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
NO2_N	2	0.010000	0.000000	0.0	0.400000	0.0	0.200000	0.200000	0.0
N	2	0.135000	0.049497	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
COOK	2	0.0	0.0	0.002450	0.270000	0.002450	0.100000	0.170000	36.665
PO4_P	2	0.010000	0.000000	0.0	0.0	0.0	0.0	0.0	0.0
TPO4_P	2	0.025000	0.007071	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
P	2	2.400000	0.000000	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
SI	2	5.600000	0.0	0.000000	4.800000	0.000000	2.400000	2.400000	0.000
DISMAT	2	461.000000	0.0	0.0	11.200000	0.0	5.600000	5.600000	0.0
SUSMAT	2	21.500000	6.363961	40.500000	922.000000	0.0	461.000000	461.000000	0.0
SP_COND	2	652.500000	17.677670	312.500000	43.000000	40.500000	17.000000	26.000000	29.600
SO4_S	2	50.000000	0.0	0.0	1305.000000	312.500000	640.000000	665.000000	2.709
TURB	2	7.500000	0.707107	0.500000	100.000000	0.0	50.000000	50.000000	0.0
TIC	2	14.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
SIO2	2	11.978400	0.000000	0.000000	29.000000	0.500000	14.000000	15.000000	4.877
SO4	2	149.800000	0.000003	0.000000	23.956800	0.000000	11.978400	11.978400	0.000
TPO4	2	0.076500	0.021637	0.000468	299.600000	0.000000	149.800000	149.800000	0.000
PO4	2	0.030600	0.0	0.0	0.153000	0.000468	0.061200	0.091800	28.284
NO2	2	0.032850	0.000000	0.000000	0.061200	0.0	0.030600	0.030600	0.0
NO3	2	0.885360	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NH3	2	0.121590	0.0	0.0	1.770720	0.000000	0.885360	0.885360	0.000
SO4_D	2	149.800000	0.000003	0.000000	0.243180	0.0	0.121590	0.121590	0.0
TPO4_D	2	0.076500	0.021637	0.000468	299.600000	0.000000	149.800000	149.800000	0.000
PO4_D	2	0.0	0.0	0.0	0.153000	0.000468	0.061200	0.091800	28.284
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	7.500000	0.707107	0.500000	0.0	0.0	0.0	0.0	0.0
SI_D	2	5.600000	0.0	0.0	15.000000	0.500000	7.000000	8.000000	9.428
K_D	2	2.400000	0.000000	0.000000	11.200000	0.0	5.600000	5.600000	0.0
CL_D	2	31.500000	0.707107	0.500000	4.800000	0.000000	2.400000	2.400000	0.000
SIO2_D	2	11.978400	0.000000	0.000000	63.000000	0.500000	31.000000	32.000000	2.245
CA_D	2	71.000000	1.414214	2.000000	23.956800	0.000000	11.978400	11.978400	0.000
SO4_S_D	2	50.000000	0.0	0.0	142.000000	2.000000	70.000000	72.000000	1.992
SUSMAT_D	2	21.500000	6.363961	40.500000	100.000000	0.0	50.000000	50.000000	0.0
TPO4_P_D	2	0.025000	0.007071	0.000050	43.000000	40.500000	17.000000	26.000000	29.600
PO4_P_D	2	0.0	0.0	0.0	0.050000	0.000050	0.020000	0.030000	28.284
N_D	2	0.085000	0.120208	0.014450	0.0	0.0	0.0	0.0	0.0
					0.170000	0.014450	0.0	0.170000	141.421

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=26

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
[illegible]	2	0.245000	0.035355	0.001250	0.490000	0.001250	0.220000	0.270000	14.431
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	12.500000	0.707107	0.500000	25.000000	0.500000	12.000000	13.000000	5.657
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=27

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
ALK	2	199.000000	4.242641	18.000000	398.000000	18.000000	196.000000	202.000000	2.132
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	72.500000	2.121320	4.500000	145.000000	4.500000	71.000000	74.000000	2.926
CL	2	30.500000	2.121320	4.500000	61.000000	4.500000	29.000000	32.000000	6.955
COLIF	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.270000	0.0	0.0	0.540000	0.0	0.270000	0.270000	0.0
HARD	2	272.500000	3.535534	12.500000	545.000000	12.500000	270.000000	275.000000	1.297
SILFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TITFE	2	0.185000	0.007071	0.000050	0.370000	0.000050	0.180000	0.190000	3.822
MG	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
NH3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
N	2	0.013000	0.000000	0.000000	0.026000	0.000000	0.013000	0.013000	0.000
PDEP	2	0.0	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
K	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
SI	2	5.900000	0.0	0.0	11.800000	0.0	5.900000	5.900000	0.0
DISMAT	2	465.500000	3.535534	12.500000	931.000000	12.500000	463.000000	468.000000	0.760
SUSMAT	2	21.500000	0.707107	0.500000	43.000000	0.500000	21.000000	22.000000	3.289
SPCOND	2	660.000000	14.142136	200.000000	1320.000000	200.000000	650.000000	670.000000	2.143
SO4_S	2	51.000000	0.0	0.0	102.000000	0.0	51.000000	51.000000	0.0
TURB	2	6.500000	0.707107	0.500000	13.000000	0.500000	6.000000	7.000000	10.879
COC	2	15.500000	0.707107	0.500000	31.000000	0.500000	15.000000	16.000000	4.562
SIO2	2	12.620100	0.000000	0.000000	25.240200	0.000000	12.620100	12.620100	0.000
SO4	2	152.796000	0.000000	0.000000	305.592000	0.000000	152.796000	152.796000	0.000
TPO4	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
SO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
PP3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	152.796000	0.000000	0.000000	305.592000	0.000000	152.796000	152.796000	0.000
TPO4_D	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4_D	2	0.015300	0.021637	0.000468	0.030600	0.000468	0.0	0.030600	141.421
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	6.500000	0.707107	0.500000	13.000000	0.500000	6.000000	7.000000	10.879
SI_D	2	5.900000	0.0	0.0	11.800000	0.0	5.900000	5.900000	0.0
K_D	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
CL_D	2	30.500000	2.121320	4.500000	61.000000	4.500000	29.000000	32.000000	6.955
SIO2_D	2	12.620100	0.000000	0.000000	25.240200	0.000000	12.620100	12.620100	0.000
CA_D	2	72.500000	2.121320	4.500000	145.000000	4.500000	71.000000	74.000000	2.926
SO4_S_D	2	51.000000	0.0	0.0	102.000000	0.0	51.000000	51.000000	0.0
SUSMAT_D	2	21.500000	0.707107	0.500000	43.000000	0.500000	21.000000	22.000000	3.289
TPO4_P_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
PO4_P_D	2	0.005000	0.007071	0.000050	0.010000	0.000050	0.0	0.010000	141.421
N_D	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=27

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
TURBE_0	2	0.185000	0.007071	0.000050	0.370000	0.000050	0.180000	0.190000	3.822
SALBE_0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	11.500000	0.707107	0.500000	23.000000	0.500000	11.000000	12.000000	6.149
AMB_A_0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=26

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
FEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
TALK	2	194.000000	2.828427	8.000000	388.000000	8.000000	192.000000	196.000000	1.458
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	72.000000	0.0	0.0	144.000000	0.0	72.000000	72.000000	0.0
CC	2	15.000000	0.0	0.0	30.000000	0.0	15.000000	15.000000	0.0
CL	2	31.500000	0.707107	0.500000	63.000000	0.500000	31.000000	32.000000	2.245
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.240000	0.014142	0.000200	0.480000	0.000200	0.230000	0.250000	5.893
MGFD	2	270.000000	0.0	0.0	540.000000	0.0	270.000000	270.000000	0.0
SILFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.220000	0.0	0.0	0.440000	0.0	0.220000	0.220000	0.0
MG	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
K	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
HARD	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
K	2	2.300000	0.141421	0.020000	4.600000	0.020000	2.200000	2.400000	6.149
SI	2	5.850000	0.070711	0.005000	11.700000	0.005000	5.800000	5.900000	1.209
DISMAT	2	461.000000	9.899495	98.000000	922.000000	98.000000	454.000000	468.000000	2.147
SUSMAT	2	18.000000	1.414214	2.000000	36.000000	2.000000	17.000000	19.000000	7.857
SP_COND	2	645.000000	0.0	0.0	1290.000000	0.0	645.000000	645.000000	0.0
SO4_S	2	51.000000	0.0	0.0	102.000000	0.0	51.000000	51.000000	0.0
TURB	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
CLC	2	15.000000	1.414214	2.000000	30.000000	2.000000	14.000000	16.000000	9.428
SIO2	2	12.513150	0.151250	0.022877	25.026300	0.022877	12.406200	12.620100	1.209
SO4	2	152.796000	0.000003	0.000000	305.592000	0.000000	152.796000	152.796000	0.000
TPO4	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	152.796000	0.000003	0.000000	305.592000	0.000000	152.796000	152.796000	0.000
TPO4_D	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
PO4_D	2	0.015300	0.021637	0.000468	0.030600	0.000468	0.0	0.030600	141.421
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
SI_D	2	5.850000	0.070711	0.005000	11.700000	0.005000	5.800000	5.900000	1.209
K_D	2	2.300000	0.141421	0.020000	4.600000	0.020000	2.200000	2.400000	6.149
CL_D	2	31.500000	0.707107	0.500000	63.000000	0.500000	31.000000	32.000000	2.245
SIO2_D	2	12.513150	0.151250	0.022877	25.026300	0.022877	12.406200	12.620100	1.209
CA_D	2	72.000000	0.0	0.0	144.000000	0.0	72.000000	72.000000	0.0
SO4_S_D	2	51.000000	0.0	0.0	102.000000	0.0	51.000000	51.000000	0.0
SUSMAT_D	2	18.000000	1.414214	2.000000	36.000000	2.000000	17.000000	19.000000	7.857
TPO4_P_D	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
PO4_P_D	2	0.005000	0.007071	0.000050	0.010000	0.000050	0.0	0.010000	141.421
K_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=28

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
TOTFE_D	2	0.220000	0.0	0.0	0.440000	0.0	0.220000	0.220000	0.0
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	15.000000	0.0	0.0	30.000000	0.0	15.000000	15.000000	0.0
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=29

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
MGALK	2	223.500000	33.234019	1104.500000	447.000000	1104.500000	200.000000	247.000000	14.870
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	71.000000	1.414214	2.000000	142.000000	2.000000	70.000000	72.000000	1.992
CL	2	33.000000	2.828427	8.000000	66.000000	8.000000	31.000000	35.000000	8.571
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.310000	0.056569	0.003200	0.620000	0.003200	0.270000	0.350000	18.248
MARG	2	280.000000	14.142136	200.000000	560.000000	200.000000	270.000000	290.000000	5.051
SELFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.255000	0.021213	0.000450	0.510000	0.000450	0.240000	0.270000	8.319
MG	2	25.000000	2.828427	8.000000	50.000000	8.000000	23.000000	27.000000	11.314
NUB_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.180000	0.0	0.0	0.360000	0.0	0.180000	0.180000	0.0
LOSS	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
K	2	2.700000	0.282843	0.080000	5.400000	0.080000	2.500000	2.900000	10.476
SI	2	5.550000	0.070711	0.005000	11.100000	0.005000	5.500000	5.600000	1.274
DISMAT	2	467.500000	17.677670	312.500000	935.000000	312.500000	455.000000	480.000000	3.781
SUSMAT	2	23.500000	2.121320	4.500000	47.000000	4.500000	22.000000	25.000000	9.027
SP_COND	2	740.000000	63.639610	4050.000000	1480.000000	4050.000000	695.000000	785.000000	8.600
SO4_S	2	52.000000	0.0	0.0	104.000000	0.0	52.000000	52.000000	0.0
TURB	2	8.000000	2.828427	8.000000	16.000000	8.000000	6.000000	10.000000	35.355
ELC	2	17.500000	0.707107	0.500000	35.000000	0.500000	17.000000	18.000000	4.041
SIO2	2	11.871450	0.151250	0.022877	23.742900	0.022877	11.764500	11.978400	1.274
SO4	2	155.792000	0.000065	0.000000	311.584000	0.000000	155.792000	155.792000	0.000
TPO4	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	155.792000	0.000065	0.000000	311.584000	0.000000	155.792000	155.792000	0.000
TPO4_D	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4_D	2	0.015300	0.021637	0.000468	0.030600	0.000468	0.0	0.030600	141.421
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	8.000000	2.828427	8.000000	16.000000	8.000000	6.000000	10.000000	35.355
SI_D	2	5.550000	0.070711	0.005000	11.100000	0.005000	5.500000	5.600000	1.274
K_D	2	2.700000	0.282843	0.080000	5.400000	0.080000	2.500000	2.900000	10.476
CL_D	2	33.000000	2.828427	8.000000	66.000000	8.000000	31.000000	35.000000	8.571
SIO2_D	2	11.871450	0.151250	0.022877	23.742900	0.022877	11.764500	11.978400	1.274
CA_D	2	71.000000	1.414214	2.000000	142.000000	2.000000	70.000000	72.000000	1.992
SO4_S_D	2	52.000000	0.0	0.0	104.000000	0.0	52.000000	52.000000	0.0
SUSMAT_D	2	23.500000	2.121320	4.500000	47.000000	4.500000	22.000000	25.000000	9.027
TPO4_P_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
PO4_P_D	2	0.005000	0.007071	0.000050	0.010000	0.000050	0.0	0.010000	141.421
N_D	2	0.180000	0.0	0.0	0.360000	0.0	0.180000	0.180000	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=29

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_O	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N_O	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO_O	2	25.000000	2.828427	8.000000	50.000000	8.000000	23.000000	27.000000	11.314
SILICE_O	2	0.255000	0.021213	0.000450	0.510000	0.000450	0.240000	0.270000	8.319
TC_O	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_N_O	2	13.000000	2.828427	8.000000	26.000000	8.000000	11.000000	15.000000	21.757
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=30

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
REP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
ALK	2	179.000000	2.828427	8.000000	358.000000	8.000000	177.000000	181.000000	1.580
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	69.000000	0.0	0.0	138.000000	0.0	69.000000	69.000000	0.0
HC	2	12.000000	0.0	0.0	24.000000	0.0	12.000000	12.000000	0.0
CL	2	32.500000	2.121320	4.500000	65.000000	4.500000	31.000000	34.000000	6.527
COLIFR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.240000	0.014142	0.000200	0.480000	0.000200	0.230000	0.250000	5.893
HARD	2	260.000000	0.0	0.0	520.000000	0.0	260.000000	260.000000	0.0
SELFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.270000	0.028284	0.000800	0.540000	0.000800	0.250000	0.290000	10.476
MG	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.130000	0.014142	0.000200	0.260000	0.000200	0.120000	0.140000	10.879
ODOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
K	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
SI	2	5.550000	0.070711	0.005000	11.100000	0.005000	5.500000	5.600000	1.274
DISSAT	2	450.500000	0.707107	0.500000	901.000000	0.500000	450.000000	451.000000	0.157
SUSSAT	2	21.000000	5.656854	32.000000	42.000000	32.000000	17.000000	25.000000	26.937
SP_COND	2	660.000000	35.355339	1250.000000	1320.000000	1250.000000	635.000000	685.000000	5.357
SO4_S	2	51.000000	1.414214	2.000000	102.000000	2.000000	50.000000	52.000000	2.773
TURB	2	8.500000	0.707107	0.500000	17.000000	0.500000	8.000000	9.000000	8.319
DLC	2	14.500000	0.707107	0.500000	29.000000	0.500000	14.000000	15.000000	4.877
SIO2	2	11.871450	0.151250	0.022877	23.742900	0.022877	11.764500	11.978400	1.274
SO4	2	152.796000	4.236984	17.952032	305.592000	17.952032	149.800000	155.792000	2.773
TPO4	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_F	2	152.796000	4.236984	17.952032	305.592000	17.952032	149.800000	155.792000	2.773
TPO4_D	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	8.500000	0.707107	0.500000	17.000000	0.500000	8.000000	9.000000	8.319
SI_D	2	5.550000	0.070711	0.005000	11.100000	0.005000	5.500000	5.600000	1.274
K_D	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
CL_D	2	32.500000	2.121320	4.500000	65.000000	4.500000	31.000000	34.000000	6.527
SIO2_D	2	11.871450	0.151250	0.022877	23.742900	0.022877	11.764500	11.978400	1.274
CA_D	2	69.000000	0.0	0.0	138.000000	0.0	69.000000	69.000000	0.0
SO4_S_D	2	51.000000	1.414214	2.000000	102.000000	2.000000	50.000000	52.000000	2.773
SUSSAT_D	2	21.000000	5.656854	32.000000	42.000000	32.000000	17.000000	25.000000	26.937
TPO4_P_D	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K_D	2	0.130000	0.014142	0.000200	0.260000	0.000200	0.120000	0.140000	10.879

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=30

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_C	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_N_C	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO_C	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
TOTFE_C	2	0.270000	0.028284	0.000800	0.540000	0.000800	0.250000	0.290000	10.476
SOLFE_C	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CL_C	2	12.000000	0.0	0.0	24.000000	0.0	12.000000	12.000000	0.0
NH3_N_C	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=31

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
KEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
ALK	2	178.000000	7.071068	50.000000	356.000000	50.000000	173.000000	183.000000	3.973
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	69.500000	0.707107	0.500000	139.000000	0.500000	69.000000	70.000000	1.017
CC	2	13.000000	0.0	0.0	26.000000	0.0	13.000000	13.000000	0.0
CL	2	31.500000	0.707107	0.500000	63.000000	0.500000	31.000000	32.000000	2.245
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.230000	0.028284	0.000800	0.460000	0.000800	0.210000	0.250000	12.296
HARI	2	265.000000	7.071068	50.000000	530.000000	50.000000	260.000000	270.000000	2.668
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.285000	0.007071	0.000050	0.570000	0.000050	0.280000	0.290000	2.481
MG	2	22.000000	0.0	0.0	44.000000	0.0	22.000000	22.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
K	2	0.115000	0.007071	0.000050	0.230000	0.000050	0.110000	0.120000	6.149
ODOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.030000	0.0	0.0	0.060000	0.0	0.030000	0.030000	0.0
N	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
SI	2	5.500000	0.0	0.0	11.000000	0.0	5.500000	5.500000	0.0
DISMAT	2	464.000000	0.0	0.0	928.000000	0.0	464.000000	464.000000	0.0
SUSMAT	2	25.000000	2.828427	8.000000	50.000000	8.000000	23.000000	27.000000	11.314
SP_COND	2	650.000000	0.0	0.0	1300.000000	0.0	650.000000	650.000000	0.0
SO4_S	2	50.000000	0.0	0.0	100.000000	0.0	50.000000	50.000000	0.0
TOFE	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
TCC	2	16.500000	2.121320	4.500000	33.000000	4.500000	15.000000	18.000000	12.856
SIO2	2	11.764500	0.000000	0.000000	23.529000	0.000000	11.764500	11.764500	0.000
SO4	2	149.800000	0.000003	0.000000	299.600000	0.000000	149.800000	149.800000	0.000
TPO4	2	0.091800	0.0	0.0	0.183600	0.0	0.091800	0.091800	0.0
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	149.800000	0.000003	0.000000	299.600000	0.000000	149.800000	149.800000	0.000
TPO4_D	2	0.091800	0.0	0.0	0.183600	0.0	0.091800	0.091800	0.0
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOFE_D	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
SI_D	2	5.500000	0.0	0.0	11.000000	0.0	5.500000	5.500000	0.0
K_D	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
CL_D	2	31.500000	0.707107	0.500000	63.000000	0.500000	31.000000	32.000000	2.245
SIO2_D	2	11.764500	0.000000	0.000000	23.529000	0.000000	11.764500	11.764500	0.000
CA_D	2	69.500000	0.707107	0.500000	139.000000	0.500000	69.000000	70.000000	1.017
SO4_S_D	2	50.000000	0.0	0.0	100.000000	0.0	50.000000	50.000000	0.0
SUSMAT_D	2	25.000000	2.828427	8.000000	50.000000	8.000000	23.000000	27.000000	11.314
TPO4_P_D	2	0.030000	0.0	0.0	0.060000	0.0	0.030000	0.030000	0.0
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K_L	2	0.115000	0.007071	0.000050	0.230000	0.000050	0.110000	0.120000	6.149

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=31

D DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	44.000000	0.0	22.000000	22.000000	0.0
07071	0.000050	0.570000	0.000050	0.280000	0.290000	2.481
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	26.000000	0.0	13.000000	13.000000	0.0
	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=32

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
FEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
PCALK	2	191.000000	1.414214	2.000000	382.000000	2.000000	190.000000	192.000000	0.740
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	72.000000	1.414214	2.000000	144.000000	2.000000	71.000000	73.000000	1.964
MG	2	13.500000	0.707107	0.500000	27.000000	0.500000	13.000000	14.000000	5.238
CL	2	32.000000	0.0	0.0	64.000000	0.0	32.000000	32.000000	0.0
COLIF	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.270000	0.0	0.0	0.540000	0.0	0.270000	0.270000	0.0
HARD	2	275.000000	7.071068	50.000000	550.000000	50.000000	270.000000	280.000000	2.571
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.235000	0.021213	0.000450	0.470000	0.000450	0.220000	0.250000	9.027
PO	2	23.000000	0.0	0.0	46.000000	0.0	23.000000	23.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.135000	0.049497	0.002450	0.270000	0.002450	0.100000	0.170000	36.665
ODOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
K	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
SI	2	5.400000	0.0	0.0	10.800000	0.0	5.400000	5.400000	0.0
DISMAT	2	492.000000	5.656854	32.000000	984.000000	32.000000	488.000000	496.000000	1.150
SUSMAT	2	22.500000	0.707107	0.500000	45.000000	0.500000	22.000000	23.000000	3.143
SP_COND	2	662.500000	3.535534	12.500000	1325.000000	12.500000	660.000000	665.000000	0.534
SO4_S	2	51.000000	1.414214	2.000000	102.000000	2.000000	50.000000	52.000000	2.773
TURB	2	9.500000	0.707107	0.500000	19.000000	0.500000	9.000000	10.000000	7.443
DOC	2	17.000000	2.828427	8.000000	34.000000	8.000000	15.000000	19.000000	16.638
SIO2	2	11.550000	0.0	0.0	23.101200	0.0	11.550600	11.550600	0.0
SO4	2	152.796000	4.236984	17.952032	305.592000	17.952032	149.800000	155.792000	2.773
TPO4	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	152.796000	4.236984	17.952032	305.592000	17.952032	149.800000	155.792000	2.773
TPO4_D	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	9.500000	0.707107	0.500000	19.000000	0.500000	9.000000	10.000000	7.443
SI_D	2	5.400000	0.0	0.0	10.800000	0.0	5.400000	5.400000	0.0
K_D	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
CL_D	2	32.000000	0.0	0.0	64.000000	0.0	32.000000	32.000000	0.0
SIO2_D	2	11.550600	0.0	0.0	23.101200	0.0	11.550600	11.550600	0.0
CA_D	2	72.000000	1.414214	2.000000	144.000000	2.000000	71.000000	73.000000	1.964
SO4_S_D	2	51.000000	1.414214	2.000000	102.000000	2.000000	50.000000	52.000000	2.773
SUSMAT_D	2	22.500000	0.707107	0.500000	45.000000	0.500000	22.000000	23.000000	3.143
TPO4_P_D	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.135000	0.049497	0.002450	0.270000	0.002450	0.100000	0.170000	36.665

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=32

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO_T	2	23.000000	0.0	0.0	46.000000	0.0	23.000000	23.000000	0.0
TOTFE_D	2	0.235000	0.021213	0.000450	0.470000	0.000450	0.220000	0.250000	9.027
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TC_C	2	13.500000	0.707107	0.500000	27.000000	0.500000	13.000000	14.000000	5.238
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=33

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
REP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
M_ALK	2	183.000000	5.656854	32.000000	366.000000	32.000000	179.000000	187.000000	3.091
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	70.000000	1.414214	2.000000	140.000000	2.000000	69.000000	71.000000	2.020
FC	2	12.500000	0.707107	0.500000	25.000000	0.500000	12.000000	13.000000	5.657
CL	2	32.000000	0.0	0.0	64.000000	0.0	32.000000	32.000000	0.0
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.275000	0.035355	0.001250	0.550000	0.001250	0.250000	0.300000	12.856
HARD	2	270.000000	0.0	0.0	540.000000	0.0	270.000000	270.000000	0.0
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.255000	0.021213	0.000450	0.510000	0.000450	0.240000	0.270000	8.319
NO	2	23.000000	0.0	0.0	46.000000	0.0	23.000000	23.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CODE	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
K	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
CL	2	5.300000	0.141421	0.020000	10.600000	0.020000	5.200000	5.400000	2.668
DISMAT	2	481.000000	1.414214	2.000000	962.000000	2.000000	480.000000	482.000000	0.294
SUSMAT	2	16.500000	0.707107	0.500000	33.000000	0.500000	16.000000	17.000000	4.285
SP_COND	2	685.000000	21.213203	450.000000	1370.000000	450.000000	670.000000	700.000000	3.097
SO4_S	2	49.500000	2.121320	4.500000	99.000000	4.500000	48.000000	51.000000	4.285
TURB	2	7.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
DOC	2	15.500000	0.707107	0.500000	31.000000	0.500000	15.000000	16.000000	4.562
SIO2	2	11.336700	0.302500	0.091506	22.673400	0.091506	11.122600	11.550600	2.668
SO4	2	141.302000	6.355476	40.392072	296.604000	40.392072	143.808000	152.796000	4.285
TPO4	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_S	2	148.302000	6.355476	40.392072	296.604000	40.392072	143.808000	152.796000	4.285
TPO4_P	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
PO4_P	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_N	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_N	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_N	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	7.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
SI_D	2	5.300000	0.141421	0.020000	10.600000	0.020000	5.200000	5.400000	2.668
K_D	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
CL_D	2	32.000000	0.0	0.0	64.000000	0.0	32.000000	32.000000	0.0
SIO2_D	2	11.336700	0.302500	0.091506	22.673400	0.091506	11.122600	11.550600	2.668
CA_D	2	70.000000	1.414214	2.000000	140.000000	2.000000	69.000000	71.000000	2.020
SO4_S_D	2	49.500000	2.121320	4.500000	99.000000	4.500000	48.000000	51.000000	4.285
SUSMAT_D	2	16.500000	0.707107	0.500000	33.000000	0.500000	16.000000	17.000000	4.285
TPO4_P_D	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=33

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	23.000000	0.0	0.0	46.000000	0.0	23.000000	23.000000	0.0
TOTFE_D	2	0.255000	0.021213	0.000450	0.510000	0.000450	0.240000	0.270000	8.319
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	12.500000	0.707107	0.500000	25.000000	0.500000	12.000000	13.000000	5.657
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=34

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
P_ALK	2	179.000000	2.828427	8.000000	358.000000	8.000000	177.000000	181.000000	1.580
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	72.500000	2.121320	4.500000	145.000000	4.500000	71.000000	74.000000	2.926
MG	2	14.500000	0.707107	0.500000	29.000000	0.500000	14.000000	15.000000	4.877
CL	2	33.000000	0.0	0.0	66.000000	0.0	33.000000	33.000000	0.0
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.285000	0.021213	0.000450	0.570000	0.000450	0.270000	0.300000	7.443
HARD	2	275.000000	7.071068	50.000000	550.000000	50.000000	270.000000	280.000000	2.571
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.235000	0.021213	0.000450	0.470000	0.000450	0.220000	0.250000	9.027
MG	2	23.000000	0.0	0.0	46.000000	0.0	23.000000	23.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.110000	0.014142	0.000200	0.220000	0.000200	0.100000	0.120000	12.856
FLOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.030000	0.014142	0.000200	0.060000	0.000200	0.020000	0.040000	47.140
K	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
SI	2	5.500000	0.0	0.0	11.000000	0.0	5.500000	5.500000	0.0
DISMAT	2	472.500000	0.707107	0.500000	945.000000	0.500000	472.000000	473.000000	0.150
SUSMAT	2	20.500000	10.606602	112.500000	41.000000	112.500000	13.000000	28.000000	51.740
SP_COND	2	700.000000	0.0	0.0	1400.000000	0.0	700.000000	700.000000	0.0
SO4_S	2	51.000000	1.414214	2.000000	102.000000	2.000000	50.000000	52.000000	2.773
TOAP	2	9.000000	0.0	0.0	18.000000	0.0	9.000000	9.000000	0.0
CLC	2	14.000000	0.0	0.0	28.000000	0.0	14.000000	14.000000	0.0
SIO2	2	11.764500	0.000000	0.000000	23.529000	0.000000	11.764500	11.764500	0.000
SO4	2	152.796000	4.236984	17.952032	305.592000	17.952032	149.800000	155.792000	2.773
TPO4	2	0.091800	0.043275	0.001873	0.183600	0.001873	0.061200	0.122400	47.140
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	152.796000	4.236984	17.952032	305.592000	17.952032	149.800000	155.792000	2.773
TPO4_D	2	0.091800	0.043275	0.001873	0.183600	0.001873	0.061200	0.122400	47.140
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	9.000000	0.0	0.0	18.000000	0.0	9.000000	9.000000	0.0
SI_D	2	5.500000	0.0	0.0	11.000000	0.0	5.500000	5.500000	0.0
K_D	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
CL_D	2	33.000000	0.0	0.0	66.000000	0.0	33.000000	33.000000	0.0
SIO2_D	2	11.764500	0.000000	0.000000	23.529000	0.000000	11.764500	11.764500	0.000
CA_D	2	72.500000	2.121320	4.500000	145.000000	4.500000	71.000000	74.000000	2.926
SO4_S_D	2	51.000000	1.414214	2.000000	102.000000	2.000000	50.000000	52.000000	2.773
SUSMAT_D	2	20.500000	10.606602	112.500000	41.000000	112.500000	13.000000	28.000000	51.740
TPO4_P_D	2	0.030000	0.014142	0.000200	0.060000	0.000200	0.020000	0.040000	47.140
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.110000	0.014142	0.000200	0.220000	0.000200	0.100000	0.120000	12.856

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=34

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
AE2_A_E	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AE3_A_E	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PC_D	2	23.000000	0.0	0.0	46.000000	0.0	23.000000	23.000000	0.0
TOTFE_D	2	0.235000	0.021213	0.000450	0.470000	0.000450	0.220000	0.250000	9.027
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PC_D	2	14.500000	0.707107	0.500000	29.000000	0.500000	14.000000	15.000000	4.877
AM3_A_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=35

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
AFP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
M_ALK	2	187.500000	3.535534	12.500000	375.000000	12.500000	185.000000	190.000000	1.886
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	71.500000	0.707107	0.500000	143.000000	0.500000	71.000000	72.000000	0.989
TC	2	17.500000	2.121320	4.500000	35.000000	4.500000	16.000000	19.000000	12.122
CL	2	35.500000	6.363961	40.500000	71.000000	40.500000	31.000000	40.000000	17.927
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.300000	0.0	0.0	0.600000	0.0	0.300000	0.300000	0.0
HARD	2	270.000000	0.0	0.0	540.000000	0.0	270.000000	270.000000	0.0
SELFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.275000	0.077782	0.006050	0.550000	0.006050	0.220000	0.330000	28.284
MG	2	23.000000	0.0	0.0	46.000000	0.0	23.000000	23.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.320000	0.014142	0.000200	0.640000	0.000200	0.310000	0.330000	4.419
COD	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
K	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
SI	2	5.300000	0.141421	0.020000	10.600000	0.020000	5.200000	5.400000	2.668
DISMAT	2	491.500000	4.949747	24.500000	983.000000	24.500000	488.000000	495.000000	1.007
SUSMAT	2	16.500000	0.707107	0.500000	33.000000	0.500000	16.000000	17.000000	4.285
SP_COND	2	732.500000	10.606602	112.500000	1465.000000	112.500000	725.000000	740.000000	1.448
SO4_S	2	50.000000	0.0	0.0	100.000000	0.0	50.000000	50.000000	0.0
TURB	2	7.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
DIC	2	16.000000	0.0	0.0	32.000000	0.0	16.000000	16.000000	0.0
SIO2	2	11.536700	0.302500	0.091506	22.673400	0.091506	11.122800	11.550600	2.668
SO4	2	149.800000	0.000003	0.000000	299.600000	0.000000	149.800000	149.800000	0.000
TPO4	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
SO4_D	2	149.800000	0.000003	0.000000	299.600000	0.000000	149.800000	149.800000	0.000
TPO4_D	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
PO4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	7.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
SI_D	2	5.300000	0.141421	0.020000	10.600000	0.020000	5.200000	5.400000	2.668
K_D	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
CL_D	2	35.500000	6.363961	40.500000	71.000000	40.500000	31.000000	40.000000	17.927
SIO2_D	2	11.536700	0.302500	0.091506	22.673400	0.091506	11.122800	11.550600	2.668
CA_D	2	71.500000	0.707107	0.500000	143.000000	0.500000	71.000000	72.000000	0.989
SO4_S_D	2	50.000000	0.0	0.0	100.000000	0.0	50.000000	50.000000	0.0
SUSMAT_D	2	16.500000	0.707107	0.500000	33.000000	0.500000	16.000000	17.000000	4.285
TPO4_P_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K_D	2	0.320000	0.014142	0.000200	0.640000	0.000200	0.310000	0.330000	4.419

APPENDIX A-3-2

GULF STANDARD WATER CHEMISTRY OCT/NOV 1974
SITE=35

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PC_D	2	23.000000	0.0	0.0	46.000000	0.0	23.000000	23.000000	0.0
TETEE_D	2	0.275000	0.077782	0.006050	0.550000	0.006050	0.220000	0.330000	28.284
SULFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PC_D	2	17.500000	2.121320	4.500000	35.000000	4.500000	16.000000	19.000000	12.122
AM3_A_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX A-3-3

WATER CHEMISTRY DATA. RBOSP AQUATIC BASELINE STUDIES
DECEMBER 1974 - JANUARY 1975

(Sata for Color are APHA Units; Other Data
are expressed in mg/l)

APPENDIX A-3-3 (Continued)

STATION REPLICATE	PARAMETER					
	AMMONIA (N)	CALCIUM (Ca)	ORGANIC CARBON (C)DISSOLVED	CHLORIDE (Cl)	COLOR (APHA)	FLUORIDE (F)
20 A	0.17	40	28	120	0-5	--
20 B	0.15	42	28	134	0-5	--
21 A	0.13	39	29	118	0-5	--
21 B	0.18	38	27	132	0-5	--
22 A	0.10	38	27	121	0-5	3.00
22 B	0.14	38	28	133	0-5	3.00
23 A	<0.10	82	6	44	0-5	--
23 B	<0.10	84	6	42	0-5	--
24 A	<0.10	75	5	48	0-5	--
24 B	<0.10	78	6	39	0-5	--
25 A	<0.10	75	5	37	0-5	--
25 B	<0.10	75	8	37	0-5	--
26 A	<0.10	76	6	38	0-5	--
26 B	<0.10	76	6	33	0-5	--
27 A	<0.10	82	8	37	0-5	0.30
27 B	<0.10	84	9	38	0-5	0.30

APPENDIX A-3-3 (Continued)

STATION REPLICATE	PARAMETER					
	AMMONIA (N)	CALCIUM (Ca)	ORGANIC CARBON (C)DISSOLVED	CHLORIDE (Cl)	COLOR (APHA)	FLUORIDE (F)
28 A	<0.10	84	8	37	0-5	--
28 B	<0.10	88	6	38	0-5	--
29 A	<0.10	78	8	43	0-5	0.59
29 B	<0.10	80	7	45	0-5	0.49
30 A	<0.10	76	8	36	0-5	--
30 B	<0.10	78	8	36	0-5	--
31 A	<0.10	76	7	37	0-5	--
31 B	<0.10	78	8	36	0-5	--
32 A	<0.10	80	4	39	0-5	--
32 B	<0.10	94	8	39	0-5	--
33 A	<0.12	80	6	39	0-5	--
33 B	<0.10	78	6	45	0-5	--
34 A	<0.10	92	5	41	0-5	--
34 B	<0.10	88	7	43	0-5	--
35 A	<0.10	82	6	42	0-5	--
35 B	<0.10	84	6	44	0-5	--

[1]Stations 1 and 2 were inaccessible due to snow accumulation, Stations 6,7,10 - 12, and 15 -18 were either dry or frozen solid so that no samples could be taken.
[2]Determined only at Stations 5,13,14,22,27, and 29.

APPENDIX A-3-3[1] (Continued)

STATION REPLICATE	PARAMETER						
	HARDNESS ($CaCO_3$)	SOLUBLE IRON (Fe)	TOTAL IRON (Fe)	MAGNESIUM (Mg)	NITRATE (N)	NITRITE (N)	KJELDAHL NITROGEN (N)
3 A	616	<0.02	0.06	70	0.2	<0.01	0.10
3 B	606	<0.02	0.07	70	0.2	<0.01	0.10
4 A	515	<0.02	0.09	62	1.7	<0.01	0.26
4 B	515	<0.02	0.08	60	1.4	<0.01	0.22
5 A	586	<0.02	0.03	80	1.4	<0.01	0.21
5 B	586	<0.02	0.05	80	1.2	<0.01	0.23
8 A	430	<0.02	0.08	55	1.0	<0.01	0.19
8 B	428	<0.02	0.03	54	0.9	<0.01	0.16
9 A	459	<0.02	0.03	61	1.1	<0.01	0.13
9 B	459	<0.02	0.04	61	0.6	<0.01	0.14
13 A	505	<0.02	0.10	67	1.0	<0.01	0.22
13 B	508	<0.02	0.10	66	0.5	<0.01	0.14
14 A	742	<0.02	0.05	111	1.3	<0.01	0.38
14 B	706	<0.02	0.05	111	1.5	<0.01	0.22
19 A	909	<0.02	0.33	180	0.2	<0.01	0.26
19 B	929	<0.02	0.19	180	0.2	<0.01	0.31

APPENDIX A-3-3 (Continued)

STATION REPLICATE	PARAMETER						
	HARDNESS ($CaCO_3$)	SOLUBLE IRON (Fe)	TOTAL IRON (Fe)	MAGNESIUM (Mg)	NITRATE (N)	NITRITE (N)	KJELDAHL NITROGEN (N)
20 A	480	<0.02	0.40	114	2.2	<0.01	0.56
20 B	472	<0.02	1.00	112	2.3	<0.01	0.59
21 A	480	<0.02	0.50	114	2.3	<0.01	0.47
21 B	480	<0.02	0.60	114	2.6	<0.01	0.54
22 A	505	<0.02	0.60	114	2.2	<0.01	0.56
22 B	508	<0.02	0.60	114	2.3	<0.01	0.47
23 A	317	<0.02	1.70	35	1.0	<0.01	0.29
23 B	321	<0.02	1.70	36	0.9	<0.01	0.33
24 A	307	<0.02	2.10	27	0.6	<0.01	0.34
24 B	294	<0.02	1.60	27	0.3	<0.01	0.31
25 A	282	<0.02	2.40	27	0.5	<0.01	0.58
25 B	296	<0.02	2.40	27	0.4	<0.01	0.71
26 A	288	<0.02	2.30	27	0.7	<0.01	0.48
26 B	284	<0.02	2.30	27	0.7	<0.01	0.54
27 A	297	<0.02	1.20	29	<0.2	<0.01	0.31
27 B	287	<0.02	1.20	29	<0.2	<0.01	0.24

APPENDIX A-3-3 (Continued)

STATION REPLICATE	PARAMETER						
	HARDNESS ($CaCO_3$)	SOLUBLE IRON(Fe)	TOTAL IRON(Fe)	MAGNESIUM (Mg)	NITRATE (N)	NITRITE (N)	KJELDAHL NITROGEN(N)
28 A	295	<0.02	2.10	30	<0.2	<0.01	0.14
28 B	291	<0.02	1.60	30	<0.2	<0.01	0.19
29 A	291	<0.02	1.20	37	1.0	<0.01	0.26
29 B	287	<0.02	1.20	36	0.8	<0.01	0.25
30 A	295	<0.02	0.60	27	<0.2	<0.01	0.18
30 B	299	<0.02	0.30	28	<0.2	<0.01	0.16
31 A	279	<0.02	0.80	28	<0.2	<0.01	0.24
31 B	283	<0.02	0.80	28	<0.2	<0.01	0.28
32 A	287	<0.02	1.30	30	0.5	<0.01	0.23
32 B	287	<0.02	0.70	30	1.4	<0.01	0.28
33 A	297	<0.02	0.40	29	0.3	<0.01	0.14
33 B	301	<0.02	0.30	28	0.4	<0.01	0.13
34 A	315	<0.02	3.00	35	1.0	<0.01	0.67
34 B	323	<0.02	3.30	34	0.9	<0.01	0.63
35 A	317	<0.02	2.00	32	0.7	<0.01	0.57
35 B	315	<0.02	2.00	32	1.0	<0.01	0.50

[1]Stations 1 and 2 were inaccessible due to snow accumulation, Stations 6,7,10 - 12 and 15 - 18 were were either dry or frozen solid so that no samples could be taken.

APPENDIX A-3-3[1] (Continued)

STATION REPLICATE	PARAMETER						
	ODOR	ORTHO-PHOSPHATE(P)	TOTAL PHOSPHATE(P)	POTASSIUM (K)	SOLUBLE SILICA(Si)	DISSOLVED SOLIDS	SODIUM (Na)
3 A	None	0.02	0.04	2.5	9.2	946	112
3 B	None	0.01	0.03	2.4	9.1	974	112
4 A	Contam.[3]	0.01	0.02	2.0	8.1	792	76
4 B	Contam	0.01	0.03	2.0	7.6	831	74
5 A	None	0.01	0.03	2.3	6.5	1070	120
5 B	None	0.01	0.02	2.3	6.3	1080	122
8 A	None	0.01	0.04	2.0	9.4	719	78
8 B	None	0.02	0.03	2.0	9.2	728	76
9 A	None	0.01	0.02	2.6	9.6	833	88
9 B	None	0.01	0.02	2.6	9.2	819	94
13 A	None	0.03	0.03	2.5	10.0	844	110
13 B	None	0.03	0.03	2.6	10.0	839	110
14 A	None	<0.01	<0.01	3.7	7.6	1255	170
14 B	None	<0.01	<0.01	3.7	8.1	1289	172
19 A	None	0.07	0.08	6.6	8.9	2010	348
19 B	None	0.06	0.08	6.6	8.7	2010	348

APPENDIX A-3-3 (Continued)

STATION REPLICATE	PARAMETER						
	ODOR	ORTHO-PHOSPHATE(P)	TOTAL PHOSPHATE(P)	POTASSIUM (K)	SOLUBLE SILICA(Si)	DISSOLVED SOLIDS	SODIUM (Na)
20 A	None	0.05	0.08	7.0	7.5	2343	700
20 B	None	0.05	0.09	7.1	7.4	2324	780
21 A	None	0.05	0.08	7.0	7.4	2339	720
21 B	None	0.05	0.07	7.0	7.5	2218	720
22 A	None	0.05	0.08	6.9	7.2	2310	720
22 B	None	0.05	0.07	6.9	7.5	2320	720
23 A	None	0.01	0.08	3.3	8.2	606	84
23 B	None	0.01	0.08	3.3	8.0	603	78
24 A	None	<0.01	0.08	3.1	7.3	480	64
24 B	None	<0.01	0.10	3.2	7.6	480	64
25 A	None	0.01	0.11	3.1	7.6	488	64
25 B	None	0.01	0.11	3.1	7.6	461	64
26 A	None	0.01	0.11	3.1	7.6	481	66
26 B	None	<0.01	0.11	3.1	7.5	491	58
27 A	None	0.01	0.08	2.9	7.8	521	74
27 B	None	0.01	0.08	3.1	7.5	544	76

STATION RECEIPT	DYE	CHLORIDE (%)	TOTAL [illegible]	RUNNING [illegible]	[illegible]	[illegible]	[illegible] (sec)
20 A	None	0.05	[illegible]	7.0	7.5	[illegible]	750
20 B	None	0.05	[illegible]	7.1	7.4	[illegible]	740
23 A	None	0.05	[illegible]	7.0	7.4	[illegible]	720
[illegible] B	None	0.05	[illegible]	7.0	[illegible]	[illegible]	780
22 A	None	0.05	[illegible]	6.9	7.4	[illegible]	720
22 B	None	0.05	[illegible]	6.9	7.5	[illegible]	720
23 A	None	0.01	[illegible]	3.0	8.2	[illegible]	84
23 B	None	0.01	[illegible]	3.2	8.3	[illegible]	78
24 A	None	0.01	[illegible]	3.1	7.3	[illegible]	61
24 B	None	0.01	[illegible]	3.2	7.4	[illegible]	61
24 A	None	0.01	[illegible]	3.4	7.5	[illegible]	61
25 B	None	0.01	[illegible]	3.1	[illegible]	[illegible]	84
24 A	None	0.01	[illegible]	3.2	7.4	[illegible]	78
24 B	None	0.01	[illegible]	3.4	[illegible]	[illegible]	[illegible]
23 A	None	0.01	[illegible]	3.0	7.5	[illegible]	74
23 B	None	0.01	[illegible]	3.1	7.6	[illegible]	78

APPENDIX A-3-3 (Continued)

STATION REPLICATE	PARAMETER						
	ODOR	ORTHO-PHOSPHATE(P)	TOTAL PHOSPHATE(P)	POTASSIUM (K)	SOLUBLE SILICA(Si)	DISSOLVED SOLIDS	SODIUM (Na)
28 A	None	0.01	0.08	3.3	7.2	536	70
28 B	None	0.01	0.06	3.1	7.2	552	68
29 A	None	0.02	0.07	3.4	7.6	699	138
29 B	None	0.02	0.06	3.3	7.4	675	122
30 A	None	<0.01	0.03	2.5	7.2	529	54
30 B	None	0.01	0.05	2.8	7.2	514	54
31 A	None	0.01	0.04	2.7	7.0	543	74
31 B	None	0.02	0.04	2.7	7.2	531	68
32 A	None	0.01	0.04	3.0	6.9	555	80
32 B	None	0.01	0.04	3.1	7.4	564	78
33 A	None	<0.01	0.02	2.6	7.8	588	70
33 B	None	<0.01	0.03	2.5	7.8	559	72
34 A	None	0.02	0.20	4.0	8.0	600	78
34 B	None	0.02	0.20	4.0	8.1	601	80
35 A	None	0.02	0.12	3.5	8.3	600	78
35 B	None	0.02	0.14	3.5	8.4	635	76

[1]Stations 1 and 2 were inaccessible due to snow accumulation, Stations 6,7,10 - 12 and 15 - 18 were either dry or frozen solid so tnat no samples could be taken.

[3]Sample contaminated

APPENDIX A-3-3[1] (Continued)

STATION REPLICATE	PARAMETER			
	SUSPENDED SOLIDS	SULFATE (S)	TOTAL ORGANIC CARBON (C)	TURBIDITY (JTU)
3 A	1	114	12	0
3 B	7	113	26	2
4 A	14	90	19	2
4 B	15	91	9	2
5 A	1	143	15	1
5 B	<1	141	19	1
8 A	3	74	9	1
8 B	2	73	9	1
9 A	1	94	4	1
9 B	5	96	5	1
13 A	3	95	11	1
13 B	<1	96	11	1
14 A	7	181	14	1
14 B	3	178	23	1
19 A	6	288	20	4
19 B	7	292	28	4

APPENDIX A-3-3 (Continued)

STATION REPLICATE	PARAMETER			
	SUSPENDED SOLIDS	SULFATE (S)	TOTAL ORGANIC CARBON(C)	TURBIDITY (JTU)
20 A	69	176	30	30
20 B	75	170	31	40
21 A	62	170	40	30
21 B	63	177	30	30
22 A	60	180	30	30
22 B	59	172	31	30
23 A	94	63	6	40
23 B	92	63	6	40
24 A	71	52	4	40
24 B	93	52	5	40
25 A	132	52	5	40
25 B	118	52	6	40
26 A	135	50	6	40
26 B	114	50	6	40
27 A	79	58	7	30
27 B	91	59	7	30

APPENDIX A-3-3 (Continued)

STATION REPLICATE	PARAMETER			
	SUSPENDED SOLIDS	SULFATE (S)	TOTAL ORGANIC CARBON(C)	TURBIDITY (JTU)
28 A	77	59	8	40
28 A	81	60	7	30
29 A	90	69	7	30
29 B	63	69	8	30
30 A	35	55	5	20
30 B	36	57	7	20
31 A	34	57	6	20
31 B	36	57	6	20
32 A	20	61	6	10
32 B	24	61	6	10
33 A	8	58	5	10
33 B	16	61	6	10
34 A	204	62	5	60
34 B	212	62	6	60
35 A	127	62	4	40
35 B	122	62	6	50

[1]Stations 1 and 2 were inaccessible due to snow accumulation, Stations 6,7,10 - 12 and 15 - 18 were either dry or frozen solid so that no samples could be taken.

APPENDIX A-3-4

SIMPLE STATISTICS FOR REPLICATE WATER CHEMISTRY ANALYSIS
RBOSP AQUATIC BASELINE STUDIES
DECEMBER 1974 - JANUARY 1975

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=3

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
NFP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
AMB_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	109.000000	0.0	0.0	218.000000	0.0	109.000000	109.000000	0.0
CC	2	19.000000	9.899495	98.000000	38.000000	98.000000	12.000000	26.000000	52.103
CL	2	13.500000	2.121320	4.500000	27.000000	4.500000	12.000000	15.000000	15.713
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FE-D	2	611.000000	7.071068	50.000000	1222.000000	50.000000	606.000000	616.000000	1.157
FOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
FOTFE	2	0.065000	0.007071	0.000050	0.130000	0.000050	0.060000	0.070000	10.879
HC	2	70.000000	0.0	0.0	140.000000	0.0	70.000000	70.000000	0.0
NH3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
P	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
PCB	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
TPO4_P	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
K	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
SI	2	9.150000	0.070711	0.005000	18.300000	0.005000	9.100000	9.200000	0.773
NA	2	112.000000	0.0	0.0	224.000000	0.0	112.000000	112.000000	0.0
DISPAT	2	960.000000	19.798990	392.000000	1920.000000	392.000000	946.000000	974.000000	2.062
SUSPAT	2	4.000000	4.242641	18.000000	8.000000	18.000000	1.000000	7.000000	106.066
SO4_S	2	113.500000	0.707107	0.500000	227.000000	0.500000	113.000000	114.000000	0.623
TURB	2	1.200000	1.131371	1.280000	2.400000	1.280000	0.400000	2.000000	94.281
UIC	2	9.000000	0.0	0.0	18.000000	0.0	9.000000	9.000000	0.0
VO3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
W3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
W2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
W4	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
WP4	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
WSI2	2	19.571850	0.151250	0.022877	39.143700	0.022877	19.464900	19.678800	0.773
WT	2	340.046000	2.113402	4.466008	680.092000	4.466008	338.546000	341.544000	0.623
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	112.000000	0.0	0.0	224.000000	0.0	112.000000	112.000000	0.0
CC_D	2	19.000000	9.899495	98.000000	38.000000	98.000000	12.000000	26.000000	52.103
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	0.065000	0.007071	0.000050	0.130000	0.000050	0.060000	0.070000	10.879
HC_D	2	70.000000	0.0	0.0	140.000000	0.0	70.000000	70.000000	0.0
NO3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P_D	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
TPO4_P_D	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
CA_D	2	109.000000	0.0	0.0	218.000000	0.0	109.000000	109.000000	0.0
CL_D	2	13.500000	2.121320	4.500000	27.000000	4.500000	12.000000	15.000000	15.713
SUSPAT_D	2	4.000000	4.242641	18.000000	8.000000	18.000000	1.000000	7.000000	106.066
SO4_S_D	2	113.500000	0.707107	0.500000	227.000000	0.500000	113.000000	114.000000	0.623
TURB_D	2	1.200000	1.131371	1.280000	2.400000	1.280000	0.400000	2.000000	94.281
UIC_D	2	9.000000	0.0	0.0	18.000000	0.0	9.000000	9.000000	0.0
SI_D	2	9.150000	0.070711	0.005000	18.300000	0.005000	9.100000	9.200000	0.773

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=3

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	2.450000	0.070711	0.005000	4.900000	0.005000	2.400000	2.500000	2.886
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
[illegible]	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
[illegible]	2	19.571850	0.151210	0.022877	39.143700	0.022877	19.464900	19.678800	0.773
[illegible]	2	340.546000	2.118492	4.488008	680.092000	4.488008	338.546000	341.544000	0.623

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=4

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
[illegible]	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	105.000000	1.414214	2.000000	210.000000	2.000000	104.000000	106.000000	1.347
CL	2	14.500000	7.071068	50.000000	28.000000	50.000000	9.000000	19.000000	50.508
[illegible]	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
[illegible]	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FARD	2	515.000000	0.0	0.0	1030.000000	0.0	515.000000	515.000000	0.0
[illegible]	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
[illegible]	2	0.085000	0.007071	0.000050	0.170000	0.000050	0.080000	0.090000	8.319
MG	2	61.000000	1.414214	2.000000	122.000000	2.000000	60.000000	62.000000	2.318
[illegible]	2	1.550000	0.212132	0.045000	3.100000	0.045000	1.400000	1.700000	13.686
[illegible]	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
[illegible]	2	0.240000	0.028284	0.000800	0.480000	0.000800	0.220000	0.260000	11.785
[illegible]	2	1.000000	0.0	0.0	2.000000	0.0	1.000000	1.000000	0.0
[illegible]	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
[illegible]	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
P	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
SI	2	7.850000	0.353553	0.125000	15.700000	0.125000	7.600000	8.100000	4.504
NA	2	75.000000	1.414214	2.000000	150.000000	2.000000	74.000000	76.000000	1.886
DISMAT	2	811.500000	27.577164	760.500000	1623.000000	760.500000	792.000000	831.000000	3.398
SUSMAT	2	14.500000	0.707107	0.500000	29.000000	0.500000	14.000000	15.000000	4.877
[illegible]	2	90.500000	0.707107	0.500000	181.000000	0.500000	90.000000	91.000000	0.781
TURB	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
PCC	2	11.000000	0.0	0.0	22.000000	0.0	11.000000	11.000000	0.0
[illegible]	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
[illegible]	2	6.881540	0.939066	0.881845	13.763080	0.881845	6.197520	7.525560	13.686
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.076550	0.021637	0.000468	0.153100	0.000468	0.061200	0.091900	28.284
[illegible]	2	16.751150	0.750251	0.571915	33.502300	0.571915	16.250400	17.325900	4.504
[illegible]	2	271.138000	2.114492	4.488008	542.276000	4.488008	269.640000	272.636000	0.781
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	75.000000	1.414214	2.000000	150.000000	2.000000	74.000000	76.000000	1.886
[illegible]	2	14.000000	7.071068	50.000000	28.000000	50.000000	9.000000	19.000000	50.508
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.085000	0.007071	0.000050	0.170000	0.000050	0.080000	0.090000	8.319
[illegible]	2	61.000000	1.414214	2.000000	122.000000	2.000000	60.000000	62.000000	2.318
[illegible]	2	1.550000	0.212132	0.045000	3.100000	0.045000	1.400000	1.700000	13.686
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.240000	0.028284	0.000800	0.480000	0.000800	0.220000	0.260000	11.785
[illegible]	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
[illegible]	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
[illegible]	2	105.000000	1.414214	2.000000	210.000000	2.000000	104.000000	106.000000	1.347
[illegible]	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
[illegible]	2	14.500000	0.707107	0.500000	29.000000	0.500000	14.000000	15.000000	4.877
[illegible]	2	90.500000	0.707107	0.500000	181.000000	0.500000	90.000000	91.000000	0.781
[illegible]	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
[illegible]	2	11.000000	0.0	0.0	22.000000	0.0	11.000000	11.000000	0.0
SI_D	2	7.850000	0.353553	0.125000	15.700000	0.125000	7.600000	8.100000	4.504

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=4

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
K_D	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	6.861540	0.939068	0.881845	13.723080	0.881845	6.197520	7.525560	13.686
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
[illegible]	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
[illegible]	2	16.791150	0.756251	0.571915	33.582300	0.571915	16.256400	17.325900	4.504
[illegible]	2	271.138000	2.118452	4.486008	542.276000	4.486008	269.640000	272.636000	0.781

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=5

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
REP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
AMR_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	102.000000	0.0	0.0	204.000000	0.0	102.000000	102.000000	0.0
CC	2	17.000000	2.828427	8.000000	34.000000	8.000000	15.000000	19.000000	16.638
CL	2	11.500000	0.707107	0.500000	23.000000	0.500000	11.000000	12.000000	6.149
CYCLA	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	586.000000	0.0	0.0	1172.000000	0.0	586.000000	586.000000	0.0
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
ISTFE	2	0.040000	0.014142	0.000200	0.080000	0.000200	0.030000	0.050000	35.355
MG	2	80.000000	0.0	0.0	160.000000	0.0	80.000000	80.000000	0.0
NO3_N	2	1.300000	0.141421	0.020000	2.600000	0.020000	1.200000	1.400000	10.879
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.220000	0.014142	0.000200	0.440000	0.000200	0.210000	0.230000	6.428
ODOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
R	2	2.300000	0.0	0.0	4.600000	0.0	2.300000	2.300000	0.0
SI	2	6.400000	0.141421	0.020000	12.800000	0.020000	6.300000	6.500000	2.210
NA	2	121.053500	1.338553	1.791724	242.107000	1.791724	120.107000	122.000000	1.106
SUSMAT	2	540.000000	763.675324	583200.000000	1080.000000	583200.000000	0.0	1080.000000	141.421
SO4_S	2	142.000000	1.414214	2.000000	284.000000	2.000000	141.000000	143.000000	0.996
TURB	2	0.950000	0.070711	0.005000	1.900000	0.005000	0.900000	1.000000	7.443
DEC	2	11.500000	0.707107	0.500000	23.000000	0.500000	11.000000	12.000000	6.149
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	5.754140	0.626044	0.391931	11.509680	0.391931	5.312160	6.197520	10.879
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
SIO2	2	13.689800	0.302500	0.091506	27.379200	0.091506	13.475700	13.903500	2.210
CA	2	425.432000	4.236964	17.952032	850.864000	17.952032	422.436000	428.428000	0.996
SMA_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	121.053500	1.338553	1.791724	242.107000	1.791724	120.107000	122.000000	1.106
CC_D	2	17.000000	2.828427	8.000000	34.000000	8.000000	15.000000	19.000000	16.638
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	0.040000	0.014142	0.000200	0.080000	0.000200	0.030000	0.050000	35.355
MG_D	2	80.000000	0.0	0.0	160.000000	0.0	80.000000	80.000000	0.0
NO3_N_D	2	1.300000	0.141421	0.020000	2.600000	0.020000	1.200000	1.400000	10.879
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.220000	0.014142	0.000200	0.440000	0.000200	0.210000	0.230000	6.428
PO4_P_D	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
CA_D	2	102.000000	0.0	0.0	204.000000	0.0	102.000000	102.000000	0.0
CL_D	2	11.500000	0.707107	0.500000	23.000000	0.500000	11.000000	12.000000	6.149
SUSMAT_D	2	0.500000	0.707107	0.500000	1.000000	0.500000	0.0	1.000000	141.421
SO4_S_D	2	142.000000	1.414214	2.000000	284.000000	2.000000	141.000000	143.000000	0.996
TURB_D	2	0.950000	0.070711	0.005000	1.900000	0.005000	0.900000	1.000000	7.443
DEC_D	2	11.500000	0.707107	0.500000	23.000000	0.500000	11.000000	12.000000	6.149
SI_D	2	6.400000	0.141421	0.020000	12.800000	0.020000	6.300000	6.500000	2.210

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=5

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	2.300000	0.0	0.0	4.600000	0.0	2.300000	2.300000	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	5.754840	0.626044	0.391931	11.509680	0.391931	5.312160	6.197520	10.879
NE2_U	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_T	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPE4_U	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
SIE2_U	2	13.669600	0.302500	0.091506	27.379200	0.091506	13.475700	13.903500	2.210
CO4_U	2	425.432000	4.236984	17.952032	850.864000	17.952032	422.436000	428.428000	0.996

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=8

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	85.000000	1.414214	2.000000	170.000000	2.000000	84.000000	86.000000	1.664
TC	2	9.000000	0.0	0.0	18.000000	0.0	9.000000	9.000000	0.0
CL	2	8.000000	0.0	0.0	16.000000	0.0	8.000000	8.000000	0.0
CL_F	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.320000	0.0	0.0	0.640000	0.0	0.320000	0.320000	0.0
HARD	2	429.000000	1.414214	2.000000	858.000000	2.000000	428.000000	430.000000	0.330
IRON	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
IRON	2	0.055000	0.035355	0.001250	0.110000	0.001250	0.030000	0.080000	64.282
MG	2	54.500000	0.707107	0.500000	109.000000	0.500000	54.000000	55.000000	1.297
NO3_N	2	0.950000	0.070711	0.005000	1.900000	0.005000	0.900000	1.000000	7.443
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.175000	0.021213	0.000450	0.350000	0.000450	0.160000	0.190000	12.122
OPO3	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_F	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
TPO4_P	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
K	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
SI	2	9.300000	0.141421	0.020000	18.600000	0.020000	9.200000	9.400000	1.521
NA	2	77.000000	1.414214	2.000000	154.000000	2.000000	76.000000	78.000000	1.837
TSSMAT	2	723.500000	6.363961	40.500000	1447.000000	40.500000	719.000000	728.000000	0.880
SUSMAT	2	2.500000	0.707107	0.500000	5.000000	0.500000	2.000000	3.000000	28.284
SO4_S	2	73.500000	0.707107	0.500000	147.000000	0.500000	73.000000	74.000000	0.962
TURB	2	1.000000	0.0	0.0	2.000000	0.0	1.000000	1.000000	0.0
TOC	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
SI2	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	4.209460	0.315022	0.099983	8.418920	0.099983	3.984120	4.426800	7.483
NO2	2	0.032750	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
TPO4	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
NTOG	2	19.892700	0.302500	0.091506	39.785400	0.091506	19.676300	20.108600	1.521
SI4	2	220.256000	2.115492	4.478008	440.512000	4.478008	218.706000	221.806000	0.962
TKN_N_F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_F	2	77.000000	1.414214	2.000000	154.000000	2.000000	76.000000	78.000000	1.837
CL_F	2	9.000000	0.0	0.0	18.000000	0.0	9.000000	9.000000	0.0
SULFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON_D	2	0.055000	0.035355	0.001250	0.110000	0.001250	0.030000	0.080000	64.282
MG_F	2	54.500000	0.707107	0.500000	109.000000	0.500000	54.000000	55.000000	1.297
NO3_N_F	2	0.950000	0.070711	0.005000	1.900000	0.005000	0.900000	1.000000	7.443
NO2_N_F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.175000	0.021213	0.000450	0.350000	0.000450	0.160000	0.190000	12.122
PO4_P_F	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
TPO4_P_D	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
CA_F	2	85.000000	1.414214	2.000000	170.000000	2.000000	84.000000	86.000000	1.664
CL_F	2	8.000000	0.0	0.0	16.000000	0.0	8.000000	8.000000	0.0
SUSMAT_D	2	2.500000	0.707107	0.500000	5.000000	0.500000	2.000000	3.000000	28.284
SO4_S_F	2	73.500000	0.707107	0.500000	147.000000	0.500000	73.000000	74.000000	0.962
TURB_D	2	1.000000	0.0	0.0	2.000000	0.0	1.000000	1.000000	0.0
TOC_D	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
SI_D	2	9.300000	0.141421	0.020000	18.600000	0.020000	9.200000	9.400000	1.521

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=8

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
K_F	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	4.205460	0.313022	0.097983	8.410920	0.097983	3.984120	4.426800	7.443
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TPO4_D	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
SI[illegible]	2	0.107100	0.021637	0.000468	0.214200	0.000468	0.091800	0.122400	20.203
SI4_D	2	19.652700	0.302500	0.091506	39.785400	0.091506	19.676800	20.106600	1.521
	2	220.206000	2.116492	4.478008	440.412000	4.478008	218.706000	221.706000	0.962

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=9

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
REP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
[illegible]_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	77.000000	0.0	0.0	154.000000	0.0	77.000000	77.000000	0.0
CC	2	4.500000	0.707107	0.500000	9.000000	0.500000	4.000000	5.000000	15.713
CL	2	9.000000	1.414214	2.000000	18.000000	2.000000	8.000000	10.000000	15.713
COLIFM	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	459.000000	0.0	0.0	918.000000	0.0	459.000000	459.000000	0.0
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TETFE	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
PO	2	61.000000	0.0	0.0	122.000000	0.0	61.000000	61.000000	0.0
[illegible]_N	2	0.850000	0.353553	0.125000	1.700000	0.125000	0.600000	1.100000	41.595
[illegible]	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
[illegible]	2	0.135000	0.007071	0.000050	0.270000	0.000050	0.130000	0.140000	5.238
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PE4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPE4_P	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
K	2	2.600000	0.000000	0.000000	5.200000	0.000000	2.600000	2.600000	0.000
SI	2	9.150000	0.070711	0.005000	18.300000	0.005000	9.100000	9.200000	0.773
NA	2	91.000000	4.242641	18.000000	182.000000	18.000000	88.000000	94.000000	4.662
[illegible]	2	876.000000	60.610173	6498.000000	1752.000000	6498.000000	819.000000	933.000000	9.702
SO4ALT	2	3.000000	2.828427	8.000000	6.000000	8.000000	1.000000	5.000000	94.281
SO4_S	2	95.000000	1.414214	2.000000	190.000000	2.000000	94.000000	96.000000	1.489
TDS	2	1.000000	0.0	0.0	2.000000	0.0	1.000000	1.000000	0.0
[illegible]	2	10.500000	0.707107	0.500000	21.000000	0.500000	10.000000	11.000000	6.734
NH4	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	3.702780	1.565110	2.449570	7.525560	2.449570	2.656080	4.869480	41.595
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
SIO2	2	19.571850	0.151250	0.022877	39.143700	0.022877	19.464900	19.678800	0.773
SO4	2	284.620000	4.236984	17.952032	569.240000	17.952032	281.624000	287.616000	1.489
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	91.000000	4.242641	18.000000	182.000000	18.000000	88.000000	94.000000	4.662
[illegible]	2	4.500000	0.707107	0.500000	9.000000	0.500000	4.000000	5.000000	15.713
SULFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TETFE_D	2	0.035000	0.007071	0.000050	0.070000	0.000050	0.030000	0.040000	20.203
PO_D	2	61.000000	0.0	0.0	122.000000	0.0	61.000000	61.000000	0.0
[illegible]	2	0.850000	0.353553	0.125000	1.700000	0.125000	0.600000	1.100000	41.595
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K_D	2	0.065000	0.001924	0.000450	0.130000	0.000450	0.0	0.130000	141.421
TPE4_P_D	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
CA_D	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
CL_D	2	77.000000	0.0	0.0	154.000000	0.0	77.000000	77.000000	0.0
SO4ALT_D	2	9.000000	1.414214	2.000000	18.000000	2.000000	8.000000	10.000000	15.713
SO4_S_D	2	2.500000	3.535534	12.500000	5.000000	12.500000	0.0	5.000000	141.421
TURB_D	2	95.000000	1.414214	2.000000	190.000000	2.000000	94.000000	96.000000	1.489
ECC_D	2	1.000000	0.0	0.0	2.000000	0.0	1.000000	1.000000	0.0
SI_D	2	10.500000	0.707107	0.500000	21.000000	0.500000	10.000000	11.000000	6.734
	2	9.150000	0.070711	0.005000	18.300000	0.005000	9.100000	9.200000	0.773

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=9

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
P_T	2	2.600000	0.000000	0.000000	5.200000	0.000000	2.600000	2.600000	0.000
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	3.782780	1.565110	2.449570	7.525560	2.449570	2.656060	4.869480	41.395
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.030600	0.0	0.0	0.0	0.0	0.030600	0.030600	0.0
TPO4_T	2	0.061200	0.000000	0.000000	0.061200	0.0	0.061200	0.061200	0.000
SIO2_D	2	19.571850	0.141250	0.022677	39.143700	0.022877	19.464900	19.678800	0.773
[illegible]	2	284.620000	4.236984	17.952032	569.240000	17.952032	281.624000	287.616000	1.489

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=13

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PER	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.055000	0.063640	0.004050	0.110000	0.004050	0.010000	0.100000	115.708
CA	2	85.000000	1.414214	2.000000	170.000000	2.000000	84.000000	86.000000	1.664
CO	2	11.000000	0.0	0.0	22.000000	0.0	11.000000	11.000000	0.0
CL	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.400000	0.0	0.0	0.800000	0.0	0.400000	0.400000	0.0
HARD	2	506.500000	2.121320	4.500000	1013.000000	4.500000	505.000000	506.000000	0.419
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
MG	2	66.500000	0.707107	0.500000	133.000000	0.500000	66.000000	67.000000	1.063
NO3_N	2	0.750000	0.353553	0.125000	1.500000	0.125000	0.500000	1.000000	47.140
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.180000	0.056569	0.003200	0.360000	0.003200	0.140000	0.220000	31.427
PERM	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.030000	0.0	0.0	0.060000	0.0	0.030000	0.030000	0.0
TPO4_P	2	0.030000	0.0	0.0	0.060000	0.0	0.030000	0.030000	0.0
K	2	2.550000	0.070711	0.005000	5.100000	0.005000	2.500000	2.600000	2.773
SI	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
NA	2	110.000000	0.0	0.0	220.000000	0.0	110.000000	110.000000	0.0
DISMAT	2	841.500000	3.535534	12.500000	1683.000000	12.500000	839.000000	844.000000	0.420
SUSMAT	2	2.000000	1.414214	2.000000	4.000000	2.000000	1.000000	3.000000	70.711
SO4_S	2	95.500000	0.707107	0.500000	191.000000	0.500000	95.000000	96.000000	0.740
TUR	2	0.900000	0.000000	0.000000	1.800000	0.000000	0.900000	0.900000	0.000
OIC	2	11.000000	1.414214	2.000000	22.000000	2.000000	10.000000	12.000000	12.856
NH3	2	0.066875	0.077379	0.005986	0.133749	0.005988	0.012159	0.121590	115.708
NO3	2	3.320100	1.565110	2.449570	6.640200	2.449570	2.213400	4.426800	47.140
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.091800	0.0	0.0	0.183600	0.0	0.091800	0.091800	0.0
TPO4	2	0.091800	0.0	0.0	0.183600	0.0	0.091800	0.091800	0.0
SIO2	2	21.390000	0.0	0.0	42.780000	0.0	21.390000	21.390000	0.0
FE4	2	286.110000	2.116492	4.480008	572.220000	4.480008	284.620000	287.610000	0.740
SPEC_CO	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	110.000000	0.0	0.0	220.000000	0.0	110.000000	110.000000	0.0
CO_D	2	11.000000	0.0	0.0	22.000000	0.0	11.000000	11.000000	0.0
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
MG_D	2	66.500000	0.707107	0.500000	133.000000	0.500000	66.000000	67.000000	1.063
NO3_N_D	2	0.750000	0.353553	0.125000	1.500000	0.125000	0.500000	1.000000	47.140
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.180000	0.056569	0.003200	0.360000	0.003200	0.140000	0.220000	31.427
PO4_P_D	2	0.030000	0.0	0.0	0.060000	0.0	0.030000	0.030000	0.0
TPO4_P_D	2	0.030000	0.0	0.0	0.060000	0.0	0.030000	0.030000	0.0
CA_D	2	85.000000	1.414214	2.000000	170.000000	2.000000	84.000000	86.000000	1.664
CL_D	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
SUSMAT_D	2	1.500000	2.121320	4.500000	3.000000	4.500000	0.0	3.000000	141.421
SO4_S_D	2	95.500000	0.707107	0.500000	191.000000	0.500000	95.000000	96.000000	0.740
TURB_D	2	0.900000	0.000000	0.000000	1.800000	0.000000	0.900000	0.900000	0.000
OIC_D	2	11.000000	1.414214	2.000000	22.000000	2.000000	10.000000	12.000000	12.856
SI_D	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=13

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	2.550000	0.070711	0.005000	5.100000	0.005000	2.500000	2.600000	2.773
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	3.320100	1.565110	2.449570	6.640200	2.449570	2.213400	4.426800	47.140
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.091800	0.0	0.0	0.183600	0.0	0.091800	0.091800	0.0
[illegible]	2	0.091800	0.0	0.0	0.183600	0.0	0.091800	0.091800	0.0
[illegible]	2	21.390000	0.0	0.0	42.780000	0.0	21.390000	21.390000	0.0
[illegible]	2	286.118000	2.113492	4.466008	572.236000	4.466008	284.620000	287.616000	0.740

1961

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=14

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
[illegible]	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	110.500000	0.707107	0.500000	221.000000	0.500000	110.000000	111.000000	0.640
MG	2	18.500000	6.363961	40.500000	37.000000	40.500000	14.000000	23.000000	34.400
CL	2	19.500000	3.535534	12.500000	39.000000	12.500000	17.000000	22.000000	18.131
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.320000	0.0	0.0	0.640000	0.0	0.320000	0.320000	0.0
HARD	2	724.000000	25.455844	648.000000	1448.000000	648.000000	706.000000	742.000000	3.516
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
IRON	2	0.050000	0.000000	0.000000	0.100000	0.000000	0.050000	0.050000	0.000
PH	2	111.000000	0.0	0.0	222.000000	0.0	111.000000	111.000000	0.0
[illegible]	2	1.400000	0.141421	0.020000	2.800000	0.020000	1.300000	1.500000	10.102
[illegible]	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
P	2	0.300000	0.113137	0.012800	0.600000	0.012800	0.220000	0.380000	37.712
PO4	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
K	2	3.700000	0.0	0.0	7.400000	0.0	3.700000	3.700000	0.0
SI	2	7.850000	0.353553	0.125000	15.700000	0.125000	7.600000	8.100000	4.504
NA	2	171.000000	1.414214	2.000000	342.000000	2.000000	170.000000	172.000000	0.827
DISSAT	2	1272.000000	24.041631	578.000000	2544.000000	578.000000	1255.000000	1289.000000	1.890
SUSPAT	2	5.000000	2.828427	8.000000	10.000000	8.000000	3.000000	7.000000	56.569
SO4_S	2	179.500000	2.121320	4.500000	359.000000	4.500000	178.000000	181.000000	1.182
TURB	2	1.000000	0.0	0.0	2.000000	0.0	1.000000	1.000000	0.0
T_C	2	32.000000	0.0	0.0	64.000000	0.0	32.000000	32.000000	0.0
[illegible]	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
[illegible]	2	6.147520	0.626044	0.391931	12.295040	0.391931	5.704840	6.590200	10.182
[illegible]	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
[illegible]	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
SIO2	2	16.791150	0.756251	0.571915	33.582300	0.571915	16.256400	17.325900	4.504
SI4	2	537.782000	6.355476	40.392072	1075.564000	40.392072	533.288000	542.276000	1.182
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_I	2	171.000000	1.414214	2.000000	342.000000	2.000000	170.000000	172.000000	0.827
[illegible]	2	18.500000	6.363961	40.500000	37.000000	40.500000	14.000000	23.000000	34.400
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.050000	0.000000	0.000000	0.100000	0.000000	0.050000	0.050000	0.000
PO_P	2	111.000000	0.0	0.0	222.000000	0.0	111.000000	111.000000	0.0
[illegible]	2	1.400000	0.141421	0.020000	2.800000	0.020000	1.300000	1.500000	10.102
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_I	2	0.300000	0.113137	0.012800	0.600000	0.012800	0.220000	0.380000	37.712
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TPO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA_I	2	110.500000	0.707107	0.500000	221.000000	0.500000	110.000000	111.000000	0.640
CL_D	2	19.500000	3.535534	12.500000	39.000000	12.500000	17.000000	22.000000	18.131
SUSPAT_D	2	5.000000	2.828427	8.000000	10.000000	8.000000	3.000000	7.000000	56.569
SO4_S_D	2	179.500000	2.121320	4.500000	359.000000	4.500000	178.000000	181.000000	1.182
TURB_I	2	1.000000	0.0	0.0	2.000000	0.0	1.000000	1.000000	0.0
T_C_W	2	32.000000	0.0	0.0	64.000000	0.0	32.000000	32.000000	0.0
SI_D	2	7.850000	0.353553	0.125000	15.700000	0.125000	7.600000	8.100000	4.504

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=14

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
N_O	2	3.700000	0.0	0.0	7.400000	0.0	3.700000	3.700000	0.0
PHS_I	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_O	2	6.197520	0.626044	0.391931	12.395040	0.391931	5.754840	6.640200	10.102
NO2_O	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_O	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TPO4_O	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIO2_O	2	16.791150	0.756251	0.571915	33.582300	0.571915	16.256400	17.325900	4.504
SO4_O	2	537.782000	6.355476	40.392072	1075.564000	40.392072	533.288000	542.276000	1.182

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=19

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
[illegible]_A	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	62.000000	0.0	0.0	124.000000	0.0	62.000000	62.000000	0.0
CL	2	24.000000	5.656854	32.000000	48.000000	32.000000	20.000000	28.000000	23.570
COLOR	2	25.000000	0.0	0.0	50.000000	0.0	25.000000	25.000000	0.0
F	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
HARD	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	919.000000	14.142136	200.000000	1838.000000	200.000000	909.000000	929.000000	1.539
[illegible]	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
[illegible]	2	0.174500	0.219910	0.048360	0.349000	0.048360	0.019000	0.330000	126.023
[illegible]	2	180.000000	0.0	0.0	360.000000	0.0	180.000000	180.000000	0.0
[illegible]_A	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
[illegible]_A	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
A	2	0.285000	0.035355	0.001250	0.570000	0.001250	0.260000	0.310000	12.405
COLOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.065000	0.007071	0.000050	0.130000	0.000050	0.060000	0.070000	10.879
TPO4_P	2	0.080000	0.0	0.0	0.160000	0.0	0.080000	0.080000	0.0
K	2	6.600000	0.0	0.0	13.200000	0.0	6.600000	6.600000	0.0
SI	2	6.800000	0.141421	0.020000	17.600000	0.020000	6.700000	6.900000	1.607
NA	2	348.000000	0.0	0.0	696.000000	0.0	348.000000	348.000000	0.0
DISMAT	2	2010.000000	0.0	0.0	4020.000000	0.0	2010.000000	2010.000000	0.0
SUSMAT	2	6.500000	0.707107	0.500000	13.000000	0.500000	6.000000	7.000000	10.879
SO4_S	2	290.000000	2.828427	8.000000	580.000000	8.000000	288.000000	292.000000	0.975
TURB	2	4.000000	0.0	0.0	8.000000	0.0	4.000000	4.000000	0.0
U_C	2	71.000000	0.0	0.0	142.000000	0.0	71.000000	71.000000	0.0
NO3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.196900	0.021637	0.000468	0.397800	0.000468	0.183600	0.214200	10.879
TPO4	2	0.244800	0.0	0.0	0.489600	0.0	0.244800	0.244800	0.0
SIO2	2	18.623200	0.302500	0.091506	37.646400	0.091506	18.609300	19.037100	1.607
SUS	2	862.848000	8.473968	71.808128	1747.660000	71.808128	862.848000	874.632000	0.975
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	348.000000	0.0	0.0	696.000000	0.0	348.000000	348.000000	0.0
CL_D	2	24.000000	5.656854	32.000000	48.000000	32.000000	20.000000	28.000000	23.570
COLOR_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURB_D	2	0.174500	0.219910	0.048360	0.349000	0.048360	0.019000	0.330000	126.023
K_D	2	180.000000	0.0	0.0	360.000000	0.0	180.000000	180.000000	0.0
[illegible]_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A_D	2	0.285000	0.035355	0.001250	0.570000	0.001250	0.260000	0.310000	12.405
PO4_P_D	2	0.065000	0.007071	0.000050	0.130000	0.000050	0.060000	0.070000	10.879
TPO4_P_D	2	0.080000	0.0	0.0	0.160000	0.0	0.080000	0.080000	0.0
CA_D	2	62.000000	0.0	0.0	124.000000	0.0	62.000000	62.000000	0.0
CL_D	2	25.000000	0.0	0.0	50.000000	0.0	25.000000	25.000000	0.0
SUSMAT_D	2	6.500000	0.707107	0.500000	13.000000	0.500000	6.000000	7.000000	10.879
SO4_S_D	2	290.000000	2.828427	8.000000	580.000000	8.000000	288.000000	292.000000	0.975
TURB_D	2	4.000000	0.0	0.0	8.000000	0.0	4.000000	4.000000	0.0
U_C_D	2	71.000000	0.0	0.0	142.000000	0.0	71.000000	71.000000	0.0
SI_D	2	6.800000	0.141421	0.020000	17.600000	0.020000	6.700000	6.900000	1.607

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=19

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	6.600000	0.0	0.0	13.200000	0.0	6.600000	6.600000	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.198900	0.021637	0.000468	0.397800	0.000468	0.183600	0.214200	10.879
[illegible]	2	0.244900	0.0	0.0	0.489600	0.0	0.244900	0.244900	0.0
[illegible]	2	18.823200	0.302500	0.091506	37.646400	0.091506	18.609300	19.037100	1.607
[illegible]	2	862.840000	9.473968	71.808128	1737.680000	71.808128	862.840000	874.832000	0.975

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=20

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
AFP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.160000	0.014142	0.000200	0.320000	0.000200	0.150000	0.170000	8.839
CA	2	41.000000	1.414214	2.000000	82.000000	2.000000	40.000000	42.000000	3.449
CC	2	30.500000	0.707107	0.500000	61.000000	0.500000	30.000000	31.000000	2.318
CL	2	127.000000	9.899495	98.000000	254.000000	98.000000	120.000000	134.000000	7.795
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	476.000000	5.656854	32.000000	952.000000	32.000000	472.000000	480.000000	1.188
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.700000	0.424264	0.180000	1.400000	0.180000	0.400000	1.000000	60.609
PO	2	113.000000	1.414214	2.000000	226.000000	2.000000	112.000000	114.000000	1.252
NH3_N	2	2.250000	0.070711	0.005000	4.500000	0.005000	2.200000	2.300000	3.143
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.575000	0.021213	0.000450	1.150000	0.000450	0.560000	0.590000	3.689
COLR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.050000	0.000000	0.000000	0.100000	0.000000	0.050000	0.050000	0.000
TPO4_P	2	0.085000	0.007071	0.000050	0.170000	0.000050	0.080000	0.090000	8.319
K	2	7.050000	0.070711	0.005000	14.100000	0.005000	7.000000	7.100000	1.003
SI	2	7.450000	0.070711	0.005000	14.900000	0.005000	7.400000	7.500000	0.949
NA	2	740.000000	56.568542	3200.000000	1480.000000	3200.000000	700.000000	780.000000	7.644
DISMAT	2	2333.500000	13.435029	180.500000	4667.000000	180.500000	2324.000000	2343.000000	0.576
SUSMAT	2	72.000000	4.242641	18.000000	144.000000	18.000000	69.000000	75.000000	5.893
SIO4_S	2	173.000000	4.242641	18.000000	346.000000	18.000000	170.000000	176.000000	2.452
TURB	2	35.000000	7.071068	50.000000	70.000000	50.000000	30.000000	40.000000	20.203
D_C	2	28.000000	0.0	0.0	56.000000	0.0	28.000000	28.000000	0.0
NH3	2	0.194444	0.017195	0.000296	0.389088	0.000296	0.182385	0.206703	8.839
NO3	2	9.940360	0.313022	0.097983	19.920600	0.097983	9.728960	10.181640	3.149
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.153000	0.000000	0.000000	0.306000	0.000000	0.153000	0.153000	0.000
TPO4	2	0.274000	0.021637	0.000468	0.528200	0.000468	0.244800	0.275400	8.319
SIO4	2	15.955550	0.151296	0.022877	31.871100	0.022877	15.828800	16.042500	0.949
SI4	2	518.000000	12.728951	161.568288	1036.616000	161.568288	509.320000	527.296000	2.452
NH3_N_D	2	0.160000	0.014142	0.000200	0.320000	0.000200	0.150000	0.170000	8.839
CA_D	2	740.000000	56.568542	3200.000000	1480.000000	3200.000000	700.000000	780.000000	7.644
CC_D	2	30.500000	0.707107	0.500000	61.000000	0.500000	30.000000	31.000000	2.318
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	0.700000	0.424264	0.180000	1.400000	0.180000	0.400000	1.000000	60.609
PO_D	2	113.000000	1.414214	2.000000	226.000000	2.000000	112.000000	114.000000	1.252
NO3_N_D	2	2.250000	0.070711	0.005000	4.500000	0.005000	2.200000	2.300000	3.143
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.575000	0.021213	0.000450	1.150000	0.000450	0.560000	0.590000	3.689
PO4_P_D	2	0.050000	0.000000	0.000000	0.100000	0.000000	0.050000	0.050000	0.000
TPO4_P_D	2	0.085000	0.007071	0.000050	0.170000	0.000050	0.080000	0.090000	8.319
CA_D	2	41.000000	1.414214	2.000000	82.000000	2.000000	40.000000	42.000000	3.449
CL_D	2	127.000000	9.899495	98.000000	254.000000	98.000000	120.000000	134.000000	7.795
SUSMAT_D	2	72.000000	4.242641	18.000000	144.000000	18.000000	69.000000	75.000000	5.893
SIO4_S_D	2	173.000000	4.242641	18.000000	346.000000	18.000000	170.000000	176.000000	2.452
TURB_D	2	35.000000	7.071068	50.000000	70.000000	50.000000	30.000000	40.000000	20.203
D_C_D	2	28.000000	0.0	0.0	56.000000	0.0	28.000000	28.000000	0.0
SI_D	2	7.450000	0.070711	0.005000	14.900000	0.005000	7.400000	7.500000	0.949

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=20

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	7.050000	0.070711	0.005000	14.100000	0.005000	7.000000	7.100000	1.003
[illegible]	2	0.194544	0.017145	0.000296	0.389088	0.000296	0.182385	0.206703	8.839
[illegible]	2	9.960300	0.313022	0.097983	19.920600	0.097983	9.738960	10.181640	3.143
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.153000	0.000000	0.000000	0.306000	0.000000	0.153000	0.153000	0.000
[illegible]	2	0.260100	0.021637	0.000468	0.520200	0.000468	0.244800	0.275400	8.319
[illegible]	2	15.935550	0.151256	0.022877	31.871100	0.022877	15.828600	16.042500	0.949
[illegible]	2	518.308000	12.710951	161.568288	1036.616000	161.568288	509.320000	527.296000	2.452

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=21

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
ALK	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.115000	0.035355	0.001250	0.230000	0.001250	0.090000	0.140000	30.710
CA	2	38.500000	0.707107	0.500000	77.000000	0.500000	38.000000	39.000000	1.837
CL	2	125.000000	9.899495	98.000000	250.000000	98.000000	118.000000	132.000000	7.920
CELLS	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	480.000000	0.0	0.0	960.000000	0.0	480.000000	480.000000	0.0
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.550000	0.070711	0.005000	1.100000	0.005000	0.500000	0.600000	12.856
MG	2	114.000000	0.0	0.0	228.000000	0.0	114.000000	114.000000	0.0
NO3_N	2	2.450000	0.212132	0.045000	4.900000	0.045000	2.300000	2.600000	8.658
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
K	2	0.505000	0.049497	0.002450	1.010000	0.002450	0.470000	0.540000	9.801
COD	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.050000	0.000000	0.000000	0.100000	0.000000	0.050000	0.050000	0.000
TPO4_P	2	0.075000	0.007071	0.000050	0.150000	0.000050	0.070000	0.080000	9.428
K	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
SI	2	7.450000	0.070711	0.005000	14.900000	0.005000	7.400000	7.500000	0.949
BA	2	720.000000	0.0	0.0	1440.000000	0.0	720.000000	720.000000	0.0
DISSRT	2	2278.500000	85.559921	7320.500000	4557.000000	7320.500000	2218.000000	2339.000000	3.755
SUSSRT	2	62.500000	0.707107	0.500000	125.000000	0.500000	62.000000	63.000000	1.131
SO4_S	2	173.500000	4.949747	24.500000	347.000000	24.500000	170.000000	177.000000	2.853
TOPO	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
COC	2	28.000000	1.414214	2.000000	56.000000	2.000000	27.000000	29.000000	5.051
TMS	2	3.188465	0.042989	0.001848	6.376929	0.001848	0.158067	0.218862	22.810
NO3	2	10.845760	0.938086	0.881845	21.691320	0.881845	10.181640	11.509680	8.658
NO2	2	0.042850	0.000000	0.000000	0.085700	0.000000	0.032850	0.032850	0.000
PO4	2	0.153000	0.000000	0.000000	0.306000	0.000000	0.153000	0.153000	0.000
TPO4	2	0.229500	0.021637	0.000468	0.459000	0.000468	0.214200	0.244800	9.428
SI2	2	15.935550	0.151250	0.022877	31.871100	0.022877	15.828600	16.042500	0.949
SI4	2	519.560000	14.829443	219.912392	1039.120000	219.912392	509.320000	530.292000	2.853
NH3_N_D	2	0.155000	0.035355	0.001250	0.310000	0.001250	0.130000	0.180000	22.810
BA_D	2	720.000000	0.0	0.0	1440.000000	0.0	720.000000	720.000000	0.0
CA_D	2	35.000000	7.071068	50.000000	70.000000	50.000000	30.000000	40.000000	20.203
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	0.550000	0.070711	0.005000	1.100000	0.005000	0.500000	0.600000	12.856
MG_D	2	114.000000	0.0	0.0	228.000000	0.0	114.000000	114.000000	0.0
NO3_N_D	2	2.450000	0.212132	0.045000	4.900000	0.045000	2.300000	2.600000	8.658
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
K_D	2	0.505000	0.049497	0.002450	1.010000	0.002450	0.470000	0.540000	9.801
PO4_P_D	2	0.050000	0.000000	0.000000	0.100000	0.000000	0.050000	0.050000	0.000
TPO4_P_D	2	0.075000	0.007071	0.000050	0.150000	0.000050	0.070000	0.080000	9.428
CA_D	2	38.500000	0.707107	0.500000	77.000000	0.500000	38.000000	39.000000	1.837
CL_D	2	125.000000	9.899495	98.000000	250.000000	98.000000	118.000000	132.000000	7.920
SUSSRT_D	2	62.500000	0.707107	0.500000	125.000000	0.500000	62.000000	63.000000	1.131
SO4_S_D	2	173.500000	4.949747	24.500000	347.000000	24.500000	170.000000	177.000000	2.853
TOPO_D	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
COC_D	2	28.000000	1.414214	2.000000	56.000000	2.000000	27.000000	29.000000	5.051
SI_D	2	7.450000	0.070711	0.005000	14.900000	0.005000	7.400000	7.500000	0.949

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=21

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
K_D	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
NO3_D	2	0.188465	0.042969	0.001848	0.376929	0.001848	0.158067	0.218862	22.810
NO3_U	2	10.845860	0.539066	0.881345	21.691320	0.881845	10.181640	11.509680	5.658
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_U	2	0.153000	0.000000	0.000000	0.306000	0.000000	0.153000	0.153000	0.000
NH4_D	2	0.229500	0.021627	0.000468	0.459000	0.000468	0.214200	0.244800	9.426
TKN4_D	2	15.935550	0.151250	0.022877	31.871100	0.022877	15.828600	16.042500	0.949
SIO2_D	2	519.660000	14.829443	219.912392	1039.612000	219.912392	509.320000	530.292000	2.853
TP04_D	2								

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=22

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
REP	2	1.500000	0.707107	0.50000	3.000000	0.50000	1.000000	2.000000	47.140
NH3_N	2	0.120000	0.028284	0.00080	0.240000	0.00080	0.100000	0.140000	23.570
CA	2	38.000000	0.0	0.0	76.000000	0.0	38.000000	38.000000	0.0
HC	2	30.500000	0.707107	0.50000	61.000000	0.50000	30.000000	31.000000	2.318
CL	2	127.000000	8.485281	72.00000	254.000000	72.00000	121.000000	133.000000	6.681
COLOR	2	1.500000	1.414214	2.00000	3.000000	2.00000	0.500000	2.500000	94.281
I	2	3.000000	0.0	0.0	6.000000	0.0	3.000000	3.000000	0.0
HARD	2	506.500000	2.121320	4.50000	1013.000000	4.50000	505.000000	508.000000	0.419
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
IRTFE	2	0.600000	0.000000	0.00000	1.200000	0.00000	0.600000	0.600000	0.000
MG	2	114.000000	0.0	0.0	228.000000	0.0	114.000000	114.000000	0.0
NO3_N	2	2.250000	0.070711	0.00500	4.500000	0.00500	2.200000	2.300000	3.143
NO2_N	2	0.010000	0.000000	0.00000	0.020000	0.00000	0.010000	0.010000	0.000
N	2	0.515000	0.063640	0.00405	1.030000	0.00405	0.470000	0.560000	12.357
PO4	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.050000	0.000000	0.00000	0.100000	0.00000	0.050000	0.050000	0.000
TPO4_P	2	0.075000	0.007071	0.00005	0.150000	0.00005	0.070000	0.080000	9.428
K	2	6.900000	0.0	0.0	13.800000	0.0	6.900000	6.900000	0.0
SI	2	7.350000	0.212132	0.04500	14.700000	0.04500	7.200000	7.500000	2.886
NA	2	720.115500	0.163342	0.02668	1440.231000	0.02668	720.000000	720.231000	0.023
DISPAT	2	1160.000000	1640.487732	2691200.00000	2320.000000	2691200.00000	0.0	2320.000000	141.421
SUSPAT	2	59.500000	0.707107	0.50000	119.000000	0.50000	59.000000	60.000000	1.188
SUS_S	2	176.000000	5.656854	32.00000	352.000000	32.00000	172.000000	180.000000	3.214
TURB	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
DOC	2	27.500000	0.707107	0.50000	55.000000	0.50000	27.000000	28.000000	2.571
NH3	2	0.145908	0.034381	0.00118	0.291816	0.00118	0.121590	0.170226	23.570
NO3	2	9.960300	0.313022	0.09798	19.920600	0.09798	9.738960	10.181640	3.143
NO2	2	0.032850	0.000000	0.00000	0.065700	0.00000	0.032850	0.032850	0.000
PO4	2	0.153000	0.000000	0.00000	0.306000	0.00000	0.153000	0.153000	0.000
TPO4	2	0.229500	0.021637	0.00047	0.459000	0.00047	0.214200	0.244800	9.428
SIO2	2	15.721650	0.453350	0.20589	31.443300	0.20589	15.400800	16.042500	2.886
SI4	2	527.296000	10.947935	287.23251	1054.592000	287.23251	515.312000	539.280000	3.214
NH3_N_D	2	0.120000	0.028284	0.00080	0.240000	0.00080	0.100000	0.140000	23.570
NA_D	2	720.115500	0.163342	0.02668	1440.231000	0.02668	720.000000	720.231000	0.023
HC_D	2	30.500000	0.707107	0.50000	61.000000	0.50000	30.000000	31.000000	2.318
SULFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRTFE_D	2	0.600000	0.000000	0.00000	1.200000	0.00000	0.600000	0.600000	0.000
MG_D	2	114.000000	0.0	0.0	228.000000	0.0	114.000000	114.000000	0.0
NO3_N_D	2	2.250000	0.070711	0.00500	4.500000	0.00500	2.200000	2.300000	3.143
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.515000	0.063640	0.00405	1.030000	0.00405	0.470000	0.560000	12.357
PO4_P_D	2	0.050000	0.000000	0.00000	0.100000	0.00000	0.050000	0.050000	0.000
TPO4_P_D	2	0.075000	0.007071	0.00005	0.150000	0.00005	0.070000	0.080000	9.428
CA_D	2	38.000000	0.0	0.0	76.000000	0.0	38.000000	38.000000	0.0
CL_D	2	127.000000	8.485281	72.00000	254.000000	72.00000	121.000000	133.000000	6.681
SUSPAT_D	2	59.500000	0.707107	0.50000	119.000000	0.50000	59.000000	60.000000	1.188
SUS_S_D	2	176.000000	5.656854	32.00000	352.000000	32.00000	172.000000	180.000000	3.214
TURB_D	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
DOC_D	2	27.500000	0.707107	0.50000	55.000000	0.50000	27.000000	28.000000	2.571
SI_D	2	7.350000	0.212132	0.04500	14.700000	0.04500	7.200000	7.500000	2.886

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=22

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
K_I	2	6.900000	0.0	0.0	13.800000	0.0	6.900000	6.900000	0.0
NH3_I	2	0.145908	0.034391	0.00118	0.291816	0.00118	0.121590	0.170226	23.570
NO3_I	2	9.966300	0.313022	0.09798	19.920600	0.09798	9.738960	10.181640	3.143
NO2_I	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_I	2	0.153000	0.000000	0.00000	0.306000	0.00000	0.153000	0.153000	0.000
TPO4_I	2	0.229500	0.021637	0.00047	0.459000	0.00047	0.214200	0.244800	9.428
SIO2_I	2	15.721650	0.453750	0.20589	31.443300	0.20589	15.400800	16.042500	2.886
SAL_I	2	527.296000	16.947935	287.23251	1054.592000	287.23251	515.312000	539.280000	3.214

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=23

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
ALP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
[illegible]	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	83.000000	1.414214	2.000000	166.000000	2.000000	82.000000	84.000000	1.704
CC	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
CL	2	43.000000	1.414214	2.000000	86.000000	2.000000	42.000000	44.000000	3.289
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	319.000000	2.828427	8.000000	638.000000	8.000000	317.000000	321.000000	0.887
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TETFE	2	1.700000	0.0	0.0	3.400000	0.0	1.700000	1.700000	0.0
TG	2	35.500000	0.707107	0.500000	71.000000	0.500000	35.000000	36.000000	1.992
NO3_N	2	0.950000	0.070711	0.005000	1.900000	0.005000	0.900000	1.000000	7.443
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.310000	0.028284	0.000800	0.620000	0.000800	0.290000	0.330000	9.124
PUMP	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.080000	0.0	0.0	0.160000	0.0	0.080000	0.080000	0.0
K	2	3.300000	0.0	0.0	6.600000	0.0	3.300000	3.300000	0.0
SI	2	8.100000	0.141421	0.020000	16.200000	0.020000	8.000000	8.200000	1.746
NA	2	81.000000	4.242641	18.000000	162.000000	18.000000	78.000000	84.000000	5.238
DISSAT	2	604.500000	2.121320	4.500000	1209.000000	4.500000	603.000000	606.000000	0.351
SUSSAT	2	93.000000	1.414214	2.000000	186.000000	2.000000	92.000000	94.000000	1.521
SO4_S	2	63.000000	0.0	0.0	126.000000	0.0	63.000000	63.000000	0.0
TURB	2	40.000000	0.0	0.0	80.000000	0.0	40.000000	40.000000	0.0
ZNC	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
PH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	4.205460	0.313022	0.097983	8.410920	0.097983	3.984120	4.426800	7.443
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.244800	0.0	0.0	0.489600	0.0	0.244800	0.244800	0.0
SIO2	2	17.325900	0.302500	0.091506	34.651800	0.091506	17.112000	17.539800	1.746
SO4	2	188.748000	0.000004	0.000000	377.496000	0.000000	188.748000	188.748000	0.000
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_I	2	81.000000	4.242641	18.000000	162.000000	18.000000	78.000000	84.000000	5.238
CC_I	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
SULFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TETFE_D	2	1.700000	0.0	0.0	3.400000	0.0	1.700000	1.700000	0.0
TG_D	2	35.500000	0.707107	0.500000	71.000000	0.500000	35.000000	36.000000	1.992
NO3_N_D	2	0.950000	0.070711	0.005000	1.900000	0.005000	0.900000	1.000000	7.443
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.310000	0.028284	0.000800	0.620000	0.000800	0.290000	0.330000	9.124
PO4_P_D	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P_D	2	0.080000	0.0	0.0	0.160000	0.0	0.080000	0.080000	0.0
CA_D	2	83.000000	1.414214	2.000000	166.000000	2.000000	82.000000	84.000000	1.704
CL_D	2	43.000000	1.414214	2.000000	86.000000	2.000000	42.000000	44.000000	3.289
SUSSAT_D	2	93.000000	1.414214	2.000000	186.000000	2.000000	92.000000	94.000000	1.521
SO4_S_D	2	63.000000	0.0	0.0	126.000000	0.0	63.000000	63.000000	0.0
TURB_D	2	40.000000	0.0	0.0	80.000000	0.0	40.000000	40.000000	0.0
ZNC_D	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
SI_D	2	8.100000	0.141421	0.020000	16.200000	0.020000	8.000000	8.200000	1.746

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=23

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	3.300000	0.0	0.0	6.600000	0.0	3.300000	3.300000	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	4.205460	0.313022	0.097983	8.410920	0.097983	3.984120	4.426800	7.443
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_D	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4_D	2	0.244800	0.0	0.0	0.489600	0.0	0.244800	0.244800	0.0
SIO2_D	2	17.325900	0.302500	0.091506	34.651800	0.091506	17.112000	17.539800	1.746
SO4_D	2	188.748000	0.000004	0.000000	377.496000	0.000000	188.748000	188.748000	0.000

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=24

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	76.500000	2.121320	4.500000	153.000000	4.500000	75.000000	78.000000	2.773
TC	2	4.500000	0.707107	0.500000	9.000000	0.500000	4.000000	5.000000	15.713
CL	2	43.500000	6.363961	40.500000	87.000000	40.500000	39.000000	48.000000	14.630
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	300.500000	9.192388	84.500000	601.000000	84.500000	294.000000	307.000000	3.059
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	1.850000	0.353553	0.125000	3.700000	0.125000	1.600000	2.100000	19.111
PO	2	27.000000	0.0	0.0	54.000000	0.0	27.000000	27.000000	0.0
NO3_N	2	0.450000	0.212132	0.045000	0.900000	0.045000	0.300000	0.600000	47.140
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.325000	0.021213	0.000450	0.650000	0.000450	0.310000	0.340000	6.527
COCR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.090000	0.014142	0.000200	0.180000	0.000200	0.080000	0.100000	15.713
K	2	3.150000	0.070711	0.005000	6.300000	0.005000	3.100000	3.200000	2.245
SI	2	7.450000	0.212132	0.045000	14.900000	0.045000	7.300000	7.600000	2.847
NA	2	64.000000	0.0	0.0	128.000000	0.0	64.000000	64.000000	0.0
BICARB	2	480.000000	0.0	0.0	960.000000	0.0	480.000000	480.000000	0.0
SULFAT	2	82.000000	15.556349	242.000000	164.000000	242.000000	71.000000	93.000000	18.971
CA_S	2	52.000000	0.0	0.0	104.000000	0.0	52.000000	52.000000	0.0
TURB	2	40.000000	0.0	0.0	80.000000	0.0	40.000000	40.000000	0.0
DOC	2	5.500000	0.707107	0.500000	11.000000	0.500000	5.000000	6.000000	12.856
[illegible]	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	1.992660	0.939066	0.881845	3.984120	0.881845	1.326040	2.659280	47.140
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.275400	0.043275	0.001873	0.550800	0.001873	0.244800	0.306000	15.713
SIO2	2	15.935550	0.453750	0.205889	31.871100	0.205889	15.614700	16.256400	2.847
SO4	2	155.792000	0.000000	0.000000	311.584000	0.000000	155.792000	155.792000	0.000
NO3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	64.000000	0.0	0.0	128.000000	0.0	64.000000	64.000000	0.0
[illegible]	2	4.500000	0.707107	0.500000	9.000000	0.500000	4.000000	5.000000	15.713
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	1.850000	0.353553	0.125000	3.700000	0.125000	1.600000	2.100000	19.111
PO_D	2	27.000000	0.0	0.0	54.000000	0.0	27.000000	27.000000	0.0
NO3_N_D	2	0.450000	0.212132	0.045000	0.900000	0.045000	0.300000	0.600000	47.140
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.325000	0.021213	0.000450	0.650000	0.000450	0.310000	0.340000	6.527
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TPO4_P_D	2	0.090000	0.014142	0.000200	0.180000	0.000200	0.080000	0.100000	15.713
CA_D	2	76.500000	2.121320	4.500000	153.000000	4.500000	75.000000	78.000000	2.773
CL_D	2	43.500000	6.363961	40.500000	87.000000	40.500000	39.000000	48.000000	14.630
SULFAT_D	2	82.000000	15.556349	242.000000	164.000000	242.000000	71.000000	93.000000	18.971
CA_S_D	2	52.000000	0.0	0.0	104.000000	0.0	52.000000	52.000000	0.0
TURB_D	2	40.000000	0.0	0.0	80.000000	0.0	40.000000	40.000000	0.0
DOC_D	2	5.500000	0.707107	0.500000	11.000000	0.500000	5.000000	6.000000	12.856
SI_D	2	7.450000	0.212132	0.045000	14.900000	0.045000	7.300000	7.600000	2.847

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=24

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	3.150000	0.070711	0.005000	6.300000	0.005000	3.100000	3.200000	2.245
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	1.992060	0.939016	0.881845	3.984120	0.881845	1.328040	2.656080	47.140
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.275400	0.043275	0.001873	0.550800	0.001873	0.244800	0.306000	15.713
[illegible]	2	15.925550	0.452750	0.205889	31.871100	0.205889	15.614700	16.256400	2.847
[illegible]	2	155.792000	0.000005	0.000000	311.584000	0.000000	155.792000	155.792000	0.000

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=25

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
[illegible]	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	75.000000	0.0	0.0	150.000000	0.0	75.000000	75.000000	0.0
[illegible]	2	5.500000	0.707107	0.500000	11.000000	0.500000	5.000000	6.000000	12.856
CL	2	37.000000	0.0	0.0	74.000000	0.0	37.000000	37.000000	0.0
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	289.000000	9.899495	98.000000	578.000000	98.000000	282.000000	296.000000	3.425
[illegible]	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
T_IRF	2	2.400000	0.000000	0.000000	4.800000	0.000000	2.400000	2.400000	0.000
[illegible]	2	27.000000	0.0	0.0	54.000000	0.0	27.000000	27.000000	0.0
NO3_N	2	0.450000	0.070711	0.005000	0.900000	0.005000	0.400000	0.500000	15.713
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
P	2	0.645000	0.091924	0.008450	1.290000	0.008450	0.580000	0.710000	14.252
PDOP	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.110000	0.0	0.0	0.220000	0.0	0.110000	0.110000	0.0
K	2	3.100000	0.0	0.0	6.200000	0.0	3.100000	3.100000	0.0
SI	2	7.600000	0.0	0.0	15.200000	0.0	7.600000	7.600000	0.0
NA	2	64.000000	0.0	0.0	128.000000	0.0	64.000000	64.000000	0.0
DISSOT	2	474.500000	19.091883	364.500000	949.000000	364.500000	461.000000	488.000000	4.024
SUSMAT	2	160.000000	39.597980	1568.000000	320.000000	1568.000000	132.000000	188.000000	24.749
SO4_S	2	52.000000	0.0	0.0	104.000000	0.0	52.000000	52.000000	0.0
TURB	2	40.000000	0.0	0.0	80.000000	0.0	40.000000	40.000000	0.0
DIC	2	6.500000	2.121320	4.500000	13.000000	4.500000	5.000000	8.000000	32.636
[illegible]	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	1.992060	0.313022	0.097983	3.984120	0.097983	1.770720	2.213400	15.713
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.336600	0.0	0.0	0.673200	0.0	0.336600	0.336600	0.0
SIO2	2	16.256400	0.0	0.0	32.512800	0.0	16.256400	16.256400	0.0
SI4	2	155.792000	0.000005	0.000000	311.584000	0.000000	155.792000	155.792000	0.000
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	64.000000	0.0	0.0	128.000000	0.0	64.000000	64.000000	0.0
[illegible]	2	5.500000	0.707107	0.500000	11.000000	0.500000	5.000000	6.000000	12.856
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	2.400000	0.000000	0.000000	4.800000	0.000000	2.400000	2.400000	0.000
PO4_D	2	27.000000	0.0	0.0	54.000000	0.0	27.000000	27.000000	0.0
NO3_N_D	2	0.450000	0.070711	0.005000	0.900000	0.005000	0.400000	0.500000	15.713
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
P_D	2	0.645000	0.091924	0.008450	1.290000	0.008450	0.580000	0.710000	14.252
PO4_P_D	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P_D	2	0.110000	0.0	0.0	0.220000	0.0	0.110000	0.110000	0.0
CA_D	2	75.000000	0.0	0.0	150.000000	0.0	75.000000	75.000000	0.0
CL_D	2	37.000000	0.0	0.0	74.000000	0.0	37.000000	37.000000	0.0
SUSMAT_D	2	160.000000	39.597980	1568.000000	320.000000	1568.000000	132.000000	188.000000	24.749
SO4_S_D	2	52.000000	0.0	0.0	104.000000	0.0	52.000000	52.000000	0.0
TURB_D	2	40.000000	0.0	0.0	80.000000	0.0	40.000000	40.000000	0.0
DIC_D	2	6.500000	2.121320	4.500000	13.000000	4.500000	5.000000	8.000000	32.636
SI_D	2	7.600000	0.0	0.0	15.200000	0.0	7.600000	7.600000	0.0

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=25

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	3.100000	0.0	0.0	6.200000	0.0	3.100000	3.100000	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	1.992060	0.313022	0.097983	3.984120	0.097983	1.770720	2.213400	15.713
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
[illegible]	2	0.336600	0.0	0.0	0.673200	0.0	0.336600	0.336600	0.0
[illegible]	2	16.256400	0.0	0.0	32.512800	0.0	16.256400	16.256400	0.0
[illegible]	2	155.792000	0.000005	0.000000	311.584000	0.000000	155.792000	155.792000	0.000

~

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=26

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
FEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	76.000000	0.0	0.0	152.000000	0.0	76.000000	76.000000	0.0
MG	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
CL	2	35.500000	3.535534	12.500000	71.000000	12.500000	33.000000	38.000000	9.959
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PH	2	286.000000	2.828427	8.000000	572.000000	8.000000	284.000000	288.000000	0.989
SILFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	2.300000	0.0	0.0	4.600000	0.0	2.300000	2.300000	0.0
HC	2	27.000000	0.0	0.0	54.000000	0.0	27.000000	27.000000	0.0
NO3_N	2	0.700000	0.000000	0.000000	1.400000	0.000000	0.700000	0.700000	0.000
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.510000	0.042426	0.001800	1.020000	0.001800	0.480000	0.540000	8.319
CO3	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.110000	0.0	0.0	0.220000	0.0	0.110000	0.110000	0.0
P	2	3.100000	0.0	0.0	6.200000	0.0	3.100000	3.100000	0.0
SI	2	7.550000	0.070711	0.005000	15.100000	0.005000	7.500000	7.600000	0.937
NA	2	62.000000	5.656854	32.000000	124.000000	32.000000	58.000000	66.000000	9.124
DISMAT	2	486.000000	7.071068	50.000000	972.000000	50.000000	481.000000	491.000000	1.455
SUSMAT	2	124.500000	14.849242	220.500000	249.000000	220.500000	114.000000	135.000000	11.927
SO4_S	2	50.000000	0.0	0.0	100.000000	0.0	50.000000	50.000000	0.0
TOFE	2	40.000000	0.0	0.0	80.000000	0.0	40.000000	40.000000	0.0
ECC	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
HH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	3.098760	0.0	0.0	6.197520	0.0	3.098760	3.098760	0.0
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.336600	0.0	0.0	0.673200	0.0	0.336600	0.336600	0.0
SIO2	2	16.145450	0.151250	0.022877	32.298900	0.022877	16.042500	16.256400	0.937
SO4	2	149.800000	0.000000	0.000000	299.600000	0.000000	149.800000	149.800000	0.000
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	62.000000	5.656854	32.000000	124.000000	32.000000	58.000000	66.000000	9.124
MG_D	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
SILFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	2.300000	0.0	0.0	4.600000	0.0	2.300000	2.300000	0.0
HC_D	2	27.000000	0.0	0.0	54.000000	0.0	27.000000	27.000000	0.0
NO3_N_D	2	0.700000	0.000000	0.000000	1.400000	0.000000	0.700000	0.700000	0.000
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.510000	0.042426	0.001800	1.020000	0.001800	0.480000	0.540000	8.319
PO4_P_D	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P_D	2	0.110000	0.0	0.0	0.220000	0.0	0.110000	0.110000	0.0
CA_D	2	76.000000	0.0	0.0	152.000000	0.0	76.000000	76.000000	0.0
CL_D	2	35.500000	3.535534	12.500000	71.000000	12.500000	33.000000	38.000000	9.959
SUSMAT_D	2	124.500000	14.849242	220.500000	249.000000	220.500000	114.000000	135.000000	11.927
SO4_S_D	2	50.000000	0.0	0.0	100.000000	0.0	50.000000	50.000000	0.0
TOFE_D	2	40.000000	0.0	0.0	80.000000	0.0	40.000000	40.000000	0.0
ECC_D	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
SI_D	2	7.550000	0.070711	0.005000	15.100000	0.005000	7.500000	7.600000	0.937

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=26

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
K_0	2	3.100000	0.0	0.0	6.200000	0.0	3.100000	3.100000	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	3.098760	0.0	0.0	6.197520	0.0	3.098760	3.098760	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
[illegible]	2	0.336600	0.0	0.0	0.673200	0.0	0.336600	0.336600	0.0
[illegible]	2	16.149450	0.151250	0.022877	32.298900	0.022877	16.042500	16.256400	0.937
SO4_0	2	149.800000	0.000003	0.000000	299.600000	0.000000	149.800000	149.800000	0.000

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=27

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
[illegible]	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
[illegible]	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	83.000000	1.414214	2.000000	166.000000	2.000000	82.000000	84.000000	1.704
[illegible]	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
CL	2	37.500000	0.707107	0.500000	75.000000	0.500000	37.000000	38.000000	1.886
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.300000	0.0	0.0	0.600000	0.0	0.300000	0.300000	0.0
HARD	2	292.000000	7.071068	50.000000	584.000000	50.000000	287.000000	297.000000	2.422
IRON	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TURB	2	1.200000	0.0	0.0	2.400000	0.0	1.200000	1.200000	0.0
MG	2	29.000000	0.0	0.0	58.000000	0.0	29.000000	29.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.275000	0.049497	0.002450	0.550000	0.002450	0.240000	0.310000	17.999
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PL4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPT4_P	2	0.080000	0.0	0.0	0.160000	0.0	0.080000	0.080000	0.0
K	2	3.000000	0.141421	0.020000	6.000000	0.020000	2.900000	3.100000	4.714
SI	2	7.650000	0.212132	0.045000	15.300000	0.045000	7.500000	7.800000	2.773
NA	2	75.000000	1.414214	2.000000	150.000000	2.000000	74.000000	76.000000	1.886
DISMAT	2	532.500000	16.263456	264.500000	1065.000000	264.500000	521.000000	544.000000	3.054
SUSMAT	2	85.000000	8.485281	72.000000	170.000000	72.000000	79.000000	91.000000	9.983
SL4_S	2	58.500000	0.707107	0.500000	117.000000	0.500000	58.000000	59.000000	1.209
TURB	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
USC	2	8.500000	0.707107	0.500000	17.000000	0.500000	8.000000	9.000000	8.319
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPT4	2	0.244800	0.0	0.0	0.489600	0.0	0.244800	0.244800	0.0
SI02	2	16.342350	0.453750	0.205889	32.726700	0.205889	16.042500	16.684200	2.773
SI4	2	175.266000	2.118492	4.486006	350.532000	4.486008	173.766000	176.764000	1.209
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PAL_P	2	75.000000	1.414214	2.000000	150.000000	2.000000	74.000000	76.000000	1.886
[illegible]	2	7.000000	0.0	0.0	14.000000	0.0	7.000000	7.000000	0.0
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	1.200000	0.0	0.0	2.400000	0.0	1.200000	1.200000	0.0
MG_D	2	29.000000	0.0	0.0	58.000000	0.0	29.000000	29.000000	0.0
NO3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_P	2	0.275000	0.049497	0.002450	0.550000	0.002450	0.240000	0.310000	17.999
PO4_P_D	2	0.005000	0.007071	0.000050	0.010000	0.000050	0.0	0.010000	141.421
TPT4_P_D	2	0.080000	0.0	0.0	0.160000	0.0	0.080000	0.080000	0.0
CA_D	2	83.000000	1.414214	2.000000	166.000000	2.000000	82.000000	84.000000	1.704
CL_D	2	37.500000	0.707107	0.500000	75.000000	0.500000	37.000000	38.000000	1.886
SUSMAT_D	2	85.000000	8.485281	72.000000	170.000000	72.000000	79.000000	91.000000	9.983
SL4_S_D	2	58.500000	0.707107	0.500000	117.000000	0.500000	58.000000	59.000000	1.209
TURB_D	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
USC_D	2	8.500000	0.707107	0.500000	17.000000	0.500000	8.000000	9.000000	8.319
SI_D	2	7.650000	0.212132	0.045000	15.300000	0.045000	7.500000	7.800000	2.773

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=27

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
P_T	2	3.000000	0.141421	0.020000	6.000000	0.020000	2.900000	3.100000	4.714
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_D	2	0.015300	0.021637	0.000468	0.030600	0.000468	0.0	0.030600	141.421
TPO4_D	2	0.244800	0.0	0.0	0.489600	0.0	0.244800	0.244800	0.0
SIO2_D	2	16.363350	0.453750	0.205689	32.726700	0.205689	16.042500	16.684200	2.773
SO4_D	2	175.266000	2.118492	4.488008	350.532000	4.488008	173.766000	176.766000	1.209

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=28

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
FEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	86.000000	2.828427	8.000000	172.000000	8.000000	84.000000	88.000000	3.289
LC	2	7.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
CL	2	37.500000	0.707107	0.500000	75.000000	0.500000	37.000000	38.000000	1.886
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	293.000000	2.828427	8.000000	586.000000	8.000000	291.000000	295.000000	0.965
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	1.850000	0.353553	0.125000	3.700000	0.125000	1.600000	2.100000	19.111
MG	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.165000	0.035355	0.001250	0.330000	0.001250	0.140000	0.190000	21.427
FOOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.070000	0.014142	0.000200	0.140000	0.000200	0.060000	0.080000	20.203
K	2	3.200000	0.141421	0.020000	6.400000	0.020000	3.100000	3.300000	4.419
SI	2	7.200000	0.0	0.0	14.400000	0.0	7.200000	7.200000	0.0
NA	2	69.000000	1.414214	2.000000	138.000000	2.000000	68.000000	70.000000	2.050
DISMAT	2	544.000000	11.313708	128.000000	1088.000000	128.000000	536.000000	552.000000	2.080
SUSMAT	2	89.000000	11.313708	128.000000	178.000000	128.000000	81.000000	97.000000	12.712
SO4_S	2	59.500000	0.707107	0.500000	119.000000	0.500000	59.000000	60.000000	1.188
TURB	2	35.000000	7.071068	50.000000	70.000000	50.000000	30.000000	40.000000	20.203
DOC	2	7.000000	1.414214	2.000000	14.000000	2.000000	6.000000	8.000000	20.203
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.214200	0.043275	0.001873	0.428400	0.001873	0.183600	0.244800	20.203
SIO2	2	15.480800	0.000000	0.000000	30.961600	0.000000	15.480800	15.480800	0.000
SI4	2	178.262000	2.118492	4.488008	356.524000	4.488008	176.764000	179.760000	1.188
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	69.000000	1.414214	2.000000	138.000000	2.000000	68.000000	70.000000	2.050
CL_D	2	7.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	1.850000	0.353553	0.125000	3.700000	0.125000	1.600000	2.100000	19.111
MG_D	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
NO3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.165000	0.035355	0.001250	0.330000	0.001250	0.140000	0.190000	21.427
PO4_P_D	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P_D	2	0.070000	0.014142	0.000200	0.140000	0.000200	0.060000	0.080000	20.203
CA_D	2	86.000000	2.828427	8.000000	172.000000	8.000000	84.000000	88.000000	3.289
CL_D	2	37.500000	0.707107	0.500000	75.000000	0.500000	37.000000	38.000000	1.886
SUSMAT_D	2	89.000000	11.313708	128.000000	178.000000	128.000000	81.000000	97.000000	12.712
SO4_S_D	2	59.500000	0.707107	0.500000	119.000000	0.500000	59.000000	60.000000	1.188
TURB_D	2	35.000000	7.071068	50.000000	70.000000	50.000000	30.000000	40.000000	20.203
DOC_D	2	7.000000	1.414214	2.000000	14.000000	2.000000	6.000000	8.000000	20.203
SI_D	2	7.200000	0.0	0.0	14.400000	0.0	7.200000	7.200000	0.0

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=28

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
K_T	2	3.200000	0.141421	0.020000	6.400000	0.020000	3.100000	3.300000	4.419
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_T	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_T	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_D	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4_D	2	0.214200	0.043275	0.001873	0.428400	0.001873	0.183600	0.244800	20.203
SIO2_D	2	15.400800	0.000000	0.000000	30.801600	0.000000	15.400800	15.400800	0.000
SO4_D	2	176.262000	2.118492	4.488008	356.524000	4.488008	176.764000	179.760000	1.188

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=29

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	79.000000	1.414214	2.000000	158.000000	2.000000	78.000000	80.000000	1.790
CL	2	44.000000	1.414214	2.000000	88.000000	2.000000	43.000000	45.000000	3.214
CLEAR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.540000	0.070711	0.005000	1.080000	0.005000	0.490000	0.590000	13.095
MALK	2	289.000000	2.828427	8.000000	578.000000	8.000000	287.000000	291.000000	0.979
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	1.200000	0.0	0.0	2.400000	0.0	1.200000	1.200000	0.0
MG	2	36.500000	0.707107	0.500000	73.000000	0.500000	36.000000	37.000000	1.937
NO3_N	2	0.900000	0.141421	0.020000	1.800000	0.020000	0.800000	1.000000	15.713
O	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
OGOF	2	0.255000	0.007071	0.000050	0.510000	0.000050	0.250000	0.260000	2.773
PH4_P	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TPH4_P	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
K	2	0.065000	0.007071	0.000050	0.130000	0.000050	0.060000	0.070000	10.879
SI	2	3.350000	0.070711	0.005000	6.700000	0.005000	3.300000	3.400000	2.111
NA	2	7.500000	0.141421	0.020000	15.000000	0.020000	7.400000	7.600000	1.886
DISMAT	2	130.000000	11.313708	128.000000	260.000000	128.000000	122.000000	138.000000	8.703
SUSMAT	2	697.000000	16.970563	288.000000	1374.000000	288.000000	675.000000	699.000000	2.470
SO4_S	2	76.500000	19.091883	364.500000	153.000000	364.500000	63.000000	90.000000	24.957
TURB	2	69.000000	0.0	0.0	138.000000	0.0	69.000000	69.000000	0.0
DOC	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
ANS	2	7.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
NO3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO2	2	3.991120	0.626044	0.391931	7.982240	0.391931	3.541440	4.426800	15.713
PO4	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
TPO4	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
SIO2	2	8.198900	0.021637	0.000468	0.397800	0.000468	0.183600	0.214200	10.879
SI4	2	16.082500	0.302560	0.091506	32.165000	0.091506	15.868600	16.296400	1.886
NH3_N_D	2	206.724000	0.0	0.0	413.448000	0.0	206.724000	206.724000	0.0
NA_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CL_D	2	130.000000	11.313708	128.000000	260.000000	128.000000	122.000000	138.000000	8.703
SOLFE_D	2	7.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
TOTFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG_D	2	1.200000	0.0	0.0	2.400000	0.0	1.200000	1.200000	0.0
NO3_N_D	2	36.500000	0.707107	0.500000	73.000000	0.500000	36.000000	37.000000	1.937
NO2_N_D	2	0.900000	0.141421	0.020000	1.800000	0.020000	0.800000	1.000000	15.713
O_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P_D	2	0.255000	0.007071	0.000050	0.510000	0.000050	0.250000	0.260000	2.773
TPO4_P_D	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
CA_D	2	0.065000	0.007071	0.000050	0.130000	0.000050	0.060000	0.070000	10.879
CL_D	2	79.000000	1.414214	2.000000	158.000000	2.000000	78.000000	80.000000	1.790
SUSMAT_D	2	44.000000	1.414214	2.000000	88.000000	2.000000	43.000000	45.000000	3.214
SO4_S_D	2	76.500000	19.091883	364.500000	153.000000	364.500000	63.000000	90.000000	24.957
TURB_D	2	69.000000	0.0	0.0	138.000000	0.0	69.000000	69.000000	0.0
DOC_D	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
SI_D	2	7.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
	2	7.500000	0.141421	0.020000	15.000000	0.020000	7.400000	7.600000	1.886

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=29

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
K_D	2	3.350000	0.070711	0.005000	6.700000	0.005000	3.300000	3.400000	2.111
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	3.984120	0.626044	0.391931	7.968240	0.391931	3.541440	4.426800	15.713
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_D	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
TPO4_D	2	0.198900	0.021637	0.000468	0.397800	0.000468	0.183600	0.214200	10.879
SIO2_D	2	16.042500	0.302500	0.091506	32.085000	0.091506	15.828600	16.256400	1.886
SO4_D	2	206.724000	0.0	0.0	413.448000	0.0	206.724000	206.724000	0.0

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=30

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
REF	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	77.000000	1.414214	2.000000	154.000000	2.000000	76.000000	78.000000	1.837
FE	2	6.000000	1.414214	2.000000	12.000000	2.000000	5.000000	7.000000	23.570
CL	2	36.000000	0.0	0.0	72.000000	0.0	36.000000	36.000000	0.0
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	297.000000	2.828427	8.000000	594.000000	8.000000	295.000000	299.000000	0.952
SOLFE	2	0.011000	0.012728	0.000162	0.022000	0.000162	0.002000	0.020000	115.708
TOTFE	2	0.450000	0.212132	0.045000	0.900000	0.045000	0.300000	0.600000	47.140
MG	2	27.500000	0.707107	0.500000	55.000000	0.500000	27.000000	28.000000	2.571
NH3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.170000	0.014142	0.000200	0.340000	0.000200	0.160000	0.180000	8.319
OCDS	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.040000	0.014142	0.000200	0.080000	0.000200	0.030000	0.050000	35.355
K	2	2.650000	0.212132	0.045000	5.300000	0.045000	2.500000	2.800000	8.005
SI	2	7.200000	0.0	0.0	14.400000	0.0	7.200000	7.200000	0.0
NA	2	54.000000	0.0	0.0	108.000000	0.0	54.000000	54.000000	0.0
DISMAT	2	521.500000	10.606602	112.500000	1043.000000	112.500000	514.000000	529.000000	2.034
SUSMAT	2	35.500000	0.707107	0.500000	71.000000	0.500000	35.000000	36.000000	1.992
SO4_S	2	56.000000	1.414214	2.000000	112.000000	2.000000	55.000000	57.000000	2.525
TURB	2	20.000000	0.0	0.0	40.000000	0.0	20.000000	20.000000	0.0
DOC	2	8.000000	0.0	0.0	16.000000	0.0	8.000000	8.000000	0.0
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.122400	0.043275	0.001873	0.244800	0.001873	0.091800	0.153000	35.355
SIO2	2	15.400800	0.000000	0.000000	30.801600	0.000000	15.400800	15.400800	0.000
SI4	2	167.776000	4.236984	17.952032	335.552000	17.952032	164.780000	170.772000	2.525
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	54.000000	0.0	0.0	108.000000	0.0	54.000000	54.000000	0.0
DOC_D	2	8.000000	1.414214	2.000000	12.000000	2.000000	5.000000	7.000000	23.570
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	0.450000	0.212132	0.045000	0.900000	0.045000	0.300000	0.600000	47.140
MG_D	2	27.500000	0.707107	0.500000	55.000000	0.500000	27.000000	28.000000	2.571
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.170000	0.014142	0.000200	0.340000	0.000200	0.160000	0.180000	8.319
PO4_P_D	2	0.005000	0.007071	0.000050	0.010000	0.000050	0.0	0.010000	141.421
TPO4_P_D	2	0.040000	0.014142	0.000200	0.080000	0.000200	0.030000	0.050000	35.355
CA_D	2	77.000000	1.414214	2.000000	154.000000	2.000000	76.000000	78.000000	1.837
CL_D	2	36.000000	0.0	0.0	72.000000	0.0	36.000000	36.000000	0.0
SUSMAT_D	2	35.500000	0.707107	0.500000	71.000000	0.500000	35.000000	36.000000	1.992
SO4_S_D	2	56.000000	1.414214	2.000000	112.000000	2.000000	55.000000	57.000000	2.525
TURB_D	2	20.000000	0.0	0.0	40.000000	0.0	20.000000	20.000000	0.0
DOC_D	2	8.000000	0.0	0.0	16.000000	0.0	8.000000	8.000000	0.0
SI_D	2	7.200000	0.0	0.0	14.400000	0.0	7.200000	7.200000	0.0

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=30

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
K_D	2	2.650000	0.212132	0.045000	5.300000	0.045000	2.500000	2.800000	8.005
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_D	2	0.015300	0.021637	0.000468	0.030600	0.000468	0.0	0.030600	141.421
TPO4_D	2	0.122400	0.043275	0.001873	0.244800	0.001873	0.091800	0.153000	35.355
SIO2_D	2	15.400800	0.000000	0.000000	30.801600	0.000000	15.400800	15.400800	0.000
SO4_D	2	167.776000	4.236984	17.952032	335.552000	17.952032	164.780000	170.772000	2.525

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=31

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
AIP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	77.000000	1.414214	2.000000	154.000000	2.000000	76.000000	78.000000	1.837
HC	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
CL	2	36.500000	0.707107	0.500000	73.000000	0.500000	36.000000	37.000000	1.937
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	281.000000	2.828427	8.000000	562.000000	8.000000	279.000000	283.000000	1.007
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.800000	0.000000	0.000000	1.600000	0.000000	0.800000	0.800000	0.000
MG	2	28.000000	0.0	0.0	56.000000	0.0	28.000000	28.000000	0.0
NO3_N	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.260000	0.028284	0.000800	0.520000	0.000800	0.240000	0.280000	10.879
ODFS	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
TPO4_P	2	0.040000	0.000000	0.000000	0.080000	0.000000	0.040000	0.040000	0.000
K	2	2.700000	0.000000	0.000000	5.400000	0.000000	2.700000	2.700000	0.000
SI	2	7.100000	0.141421	0.020000	14.200000	0.020000	7.000000	7.200000	1.992
NA	2	71.000000	4.242641	18.000000	142.000000	18.000000	68.000000	74.000000	5.976
DISMAT	2	537.000000	6.485281	72.000000	1074.000000	72.000000	531.000000	543.000000	1.580
SUSMAT	2	35.000000	1.414214	2.000000	70.000000	2.000000	34.000000	36.000000	4.041
SO4_S	2	57.000000	0.0	0.0	114.000000	0.0	57.000000	57.000000	0.0
TURB	2	20.000000	0.0	0.0	40.000000	0.0	20.000000	20.000000	0.0
EDC	2	7.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	0.885360	0.000000	0.000000	1.770720	0.000000	0.885360	0.885360	0.000
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.065900	0.021637	0.000468	0.091800	0.000468	0.050600	0.081200	47.140
TPO4	2	0.122400	0.0	0.0	0.244800	0.0	0.122400	0.122400	0.0
SIO2	2	15.116900	0.382500	0.091506	30.373800	0.091506	14.973000	15.400800	1.992
SO4	2	170.772000	0.000003	0.000000	341.544000	0.000000	170.772000	170.772000	0.000
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	71.000000	4.242641	18.000000	142.000000	18.000000	68.000000	74.000000	5.976
CL_D	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	0.800000	0.000000	0.000000	1.600000	0.000000	0.800000	0.800000	0.000
MG_D	2	28.000000	0.0	0.0	56.000000	0.0	28.000000	28.000000	0.0
NO3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.260000	0.028284	0.000800	0.520000	0.000800	0.240000	0.280000	10.879
PO4_P_D	2	0.015000	0.007071	0.000050	0.030000	0.000050	0.010000	0.020000	47.140
TPO4_P_D	2	0.040000	0.000000	0.000000	0.080000	0.000000	0.040000	0.040000	0.000
CA_D	2	77.000000	1.414214	2.000000	154.000000	2.000000	76.000000	78.000000	1.837
CL_D	2	36.500000	0.707107	0.500000	73.000000	0.500000	36.000000	37.000000	1.937
SUSMAT_D	2	35.000000	1.414214	2.000000	70.000000	2.000000	34.000000	36.000000	4.041
SO4_S_D	2	57.000000	0.0	0.0	114.000000	0.0	57.000000	57.000000	0.0
TURB_D	2	20.000000	0.0	0.0	40.000000	0.0	20.000000	20.000000	0.0
EDC_D	2	7.500000	0.707107	0.500000	15.000000	0.500000	7.000000	8.000000	9.428
SI_D	2	7.100000	0.141421	0.020000	14.200000	0.020000	7.000000	7.200000	1.992

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=31

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
K_D	2	2.700000	0.000000	0.000000	5.400000	0.000000	2.700000	2.700000	0.000
AMB_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_D	2	0.045900	0.021637	0.000468	0.091800	0.000468	0.030600	0.061200	47.140
TPO4_D	2	0.122400	0.0	0.0	0.244800	0.0	0.122400	0.122400	0.0
SIO2_D	2	15.186900	0.302500	0.091506	30.373800	0.091506	14.973000	15.400800	1.992
SO4_D	2	170.772000	0.000003	0.000000	341.544000	0.000000	170.772000	170.772000	0.000

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=32

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	87.000000	9.899495	98.000000	174.000000	98.000000	80.000000	94.000000	11.379
CC	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
CL	2	39.000000	0.0	0.0	78.000000	0.0	39.000000	39.000000	0.0
COLIF	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FAEL	2	287.000000	0.0	0.0	574.000000	0.0	287.000000	287.000000	0.0
SOLFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	1.000000	0.424264	0.180000	2.000000	0.180000	0.700000	1.300000	42.426
MG	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
NO3_N	2	0.950000	0.636396	0.405000	1.900000	0.405000	0.500000	1.400000	66.989
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.255000	0.035355	0.001250	0.510000	0.001250	0.230000	0.280000	13.865
ODOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.040000	0.000000	0.000000	0.080000	0.000000	0.040000	0.040000	0.000
K	2	3.050000	0.070711	0.005000	6.100000	0.005000	3.000000	3.100000	2.318
SI	2	7.150000	0.353553	0.125000	14.300000	0.125000	6.900000	7.400000	4.945
NA	2	79.000000	1.414214	2.000000	158.000000	2.000000	78.000000	80.000000	1.790
DISMAT	2	559.500000	6.363961	40.500000	1119.000000	40.500000	555.000000	564.000000	1.137
SUSMAT	2	22.000000	2.828427	8.000000	44.000000	8.000000	20.000000	24.000000	12.856
SO4_S	2	61.000000	0.0	0.0	122.000000	0.0	61.000000	61.000000	0.0
TURB	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
LOC	2	6.000000	2.828427	8.000000	12.000000	8.000000	4.000000	8.000000	47.140
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	4.205460	2.817198	7.936606	8.410920	7.936606	2.213400	6.197520	66.989
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.122400	0.0	0.0	0.244800	0.0	0.122400	0.122400	0.0
SIO2	2	15.298650	0.756251	0.571915	30.597700	0.571915	14.759100	15.828600	4.945
SO4	2	182.756000	0.000004	0.000000	365.512000	0.000000	182.756000	182.756000	0.000
NH3_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	79.000000	1.414214	2.000000	158.000000	2.000000	78.000000	80.000000	1.790
CC_D	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
SOLFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	1.000000	0.424264	0.180000	2.000000	0.180000	0.700000	1.300000	42.426
MG_D	2	30.000000	0.0	0.0	60.000000	0.0	30.000000	30.000000	0.0
NO3_N_D	2	0.950000	0.636396	0.405000	1.900000	0.405000	0.500000	1.400000	66.989
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.255000	0.035355	0.001250	0.510000	0.001250	0.230000	0.280000	13.865
PO4_P_D	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P_D	2	0.040000	0.000000	0.000000	0.080000	0.000000	0.040000	0.040000	0.000
CA_D	2	87.000000	9.899495	98.000000	174.000000	98.000000	80.000000	94.000000	11.379
CL_D	2	39.000000	0.0	0.0	78.000000	0.0	39.000000	39.000000	0.0
SUSMAT_D	2	22.000000	2.828427	8.000000	44.000000	8.000000	20.000000	24.000000	12.856
SO4_S_D	2	61.000000	0.0	0.0	122.000000	0.0	61.000000	61.000000	0.0
TURB_D	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
LOC_D	2	6.000000	2.828427	8.000000	12.000000	8.000000	4.000000	8.000000	47.140
SI_D	2	7.150000	0.353553	0.125000	14.300000	0.125000	6.900000	7.400000	4.945

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=32

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
P_D	2	3.050000	0.070711	0.005000	6.100000	0.005000	3.000000	3.100000	2.318
NH3_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_D	2	4.205460	2.817198	7.936606	8.410920	7.936606	2.213400	6.197520	66.969
NO2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_D	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4_D	2	0.122400	0.0	0.0	0.244800	0.0	0.122400	0.122400	0.0
SIO2_D	2	15.293850	0.756251	0.571915	30.587700	0.571915	14.759100	15.828600	4.945
SO4_D	2	182.756000	0.000004	0.000000	365.512000	0.000000	182.756000	182.756000	0.000

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=33

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
MEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.110000	0.014142	0.000200	0.220000	0.000200	0.100000	0.120000	12.856
CA	2	79.000000	1.414214	2.000000	158.000000	2.000000	78.000000	80.000000	1.790
TC	2	5.500000	0.707107	0.500000	11.000000	0.500000	5.000000	6.000000	12.856
CL	2	42.000000	4.242641	18.000000	84.000000	18.000000	39.000000	45.000000	10.102
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	299.000000	2.828427	8.000000	598.000000	8.000000	297.000000	301.000000	0.946
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	0.350000	0.070711	0.005000	0.700000	0.005000	0.300000	0.400000	20.203
MG	2	28.500000	0.707107	0.500000	57.000000	0.500000	28.000000	29.000000	2.481
MG3_M	2	0.350000	0.070711	0.005000	0.700000	0.005000	0.300000	0.400000	20.203
MG2_M	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.135000	0.007071	0.000050	0.270000	0.000050	0.130000	0.140000	5.238
COD	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
TPO4_P	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
K	2	2.550000	0.070711	0.005000	5.100000	0.005000	2.500000	2.600000	2.773
SI	2	7.800000	0.0	0.0	15.600000	0.0	7.800000	7.800000	0.0
NA	2	71.000000	1.414214	2.000000	142.000000	2.000000	70.000000	72.000000	1.992
DISPAT	2	573.500000	20.506097	420.500000	1147.000000	420.500000	559.000000	588.000000	3.576
SUSPAT	2	12.000000	5.656854	32.000000	24.000000	32.000000	8.000000	16.000000	47.140
SO4_S	2	59.500000	2.121320	4.500000	119.000000	4.500000	58.000000	61.000000	3.565
TOKA	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
DOC	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
NH3	2	0.133749	0.017195	0.000296	0.267498	0.000296	0.121590	0.145908	12.856
NO3	2	1.549380	0.313022	0.097983	3.098760	0.097983	1.328040	1.770720	20.203
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.030600	0.0	0.0	0.061200	0.0	0.030600	0.030600	0.0
TPO4	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
SIO2	2	16.684200	0.0	0.0	33.368400	0.0	16.684200	16.684200	0.0
SO4	2	178.262000	6.355476	40.392072	356.524000	40.392072	173.768000	182.756000	3.565
NH3_N_D	2	0.060000	0.084853	0.007200	0.120000	0.007200	0.0	0.120000	141.421
NA_D	2	71.000000	1.414214	2.000000	142.000000	2.000000	70.000000	72.000000	1.992
CL_D	2	5.500000	0.707107	0.500000	11.000000	0.500000	5.000000	6.000000	12.856
SULFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	0.350000	0.070711	0.005000	0.700000	0.005000	0.300000	0.400000	20.203
MG_D	2	28.500000	0.707107	0.500000	57.000000	0.500000	28.000000	29.000000	2.481
MG3_N_D	2	0.350000	0.070711	0.005000	0.700000	0.005000	0.300000	0.400000	20.203
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.135000	0.007071	0.000050	0.270000	0.000050	0.130000	0.140000	5.238
PO4_P_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TPO4_P_D	2	0.025000	0.007071	0.000050	0.050000	0.000050	0.020000	0.030000	28.284
CA_D	2	79.000000	1.414214	2.000000	158.000000	2.000000	78.000000	80.000000	1.790
CL_D	2	42.000000	4.242641	18.000000	84.000000	18.000000	39.000000	45.000000	10.102
SUSPAT_D	2	12.000000	5.656854	32.000000	24.000000	32.000000	8.000000	16.000000	47.140
SO4_S_D	2	59.500000	2.121320	4.500000	119.000000	4.500000	58.000000	61.000000	3.565
TOKA_D	2	10.000000	0.0	0.0	20.000000	0.0	10.000000	10.000000	0.0
DOC_D	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
SI_D	2	7.800000	0.0	0.0	15.600000	0.0	7.800000	7.800000	0.0

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=33

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
K_D	2	2.550000	0.070711	0.005000	5.100000	0.005000	2.500000	2.600000	2.773
[illegible]_D	2	0.072954	0.103173	0.010645	0.145908	0.010645	0.0	0.145908	141.421
N[illegible]_D	2	1.549380	0.313022	0.097983	3.098760	0.097983	1.328040	1.770720	20.203
[illegible]2_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
P[illegible]4_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TP[illegible]_D	2	0.076500	0.021637	0.000468	0.153000	0.000468	0.061200	0.091800	28.284
[illegible]_D	2	16.684200	0.0	0.0	33.368400	0.0	16.684200	16.684200	0.0
SI[illegible]_D	2	176.262000	6.355476	40.392072	352.524000	40.392072	173.768000	182.756000	3.565

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=34

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
PEP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	90.000000	2.828427	8.000000	180.000000	8.000000	88.000000	92.000000	3.143
EC	2	5.500000	0.707107	0.500000	11.000000	0.500000	5.000000	6.000000	12.856
CL	2	42.000000	1.414214	2.000000	84.000000	2.000000	41.000000	43.000000	3.367
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	319.000000	5.656854	32.000000	638.000000	32.000000	315.000000	323.000000	1.773
SELE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTE	2	3.150000	0.212132	0.045000	6.300000	0.045000	3.000000	3.300000	6.734
PH	2	34.500000	0.707107	0.500000	69.000000	0.500000	34.000000	35.000000	2.050
NO3_N	2	0.950000	0.070711	0.005000	1.900000	0.005000	0.900000	1.000000	7.443
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
P	2	0.650000	0.028284	0.000800	1.300000	0.000800	0.630000	0.670000	4.351
COLOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TPO4_P	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
K	2	4.000000	0.0	0.0	8.000000	0.0	4.000000	4.000000	0.0
SI	2	8.050000	0.070711	0.005000	16.100000	0.005000	8.000000	8.100000	0.878
NA	2	79.000000	1.414214	2.000000	158.000000	2.000000	78.000000	80.000000	1.790
DISPAT	2	600.500000	0.707107	0.500000	1201.000000	0.500000	600.000000	601.000000	0.118
SUSPAT	2	208.000000	5.656854	32.000000	416.000000	32.000000	204.000000	212.000000	2.720
SO4_S	2	62.000000	0.0	0.0	124.000000	0.0	62.000000	62.000000	0.0
TURB	2	60.000000	0.0	0.0	120.000000	0.0	60.000000	60.000000	0.0
DOC	2	6.000000	1.414214	2.000000	12.000000	2.000000	5.000000	7.000000	23.570
NH3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NO3	2	4.205460	0.313922	0.097983	8.410920	0.097983	3.984120	4.426800	7.443
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
TPO4	2	0.612000	0.000000	0.000000	1.224000	0.000000	0.612000	0.612000	0.000
SIO2	2	17.218950	0.151250	0.022877	34.437900	0.022877	17.112000	17.325900	0.878
SES	2	185.752000	0.000064	0.000000	371.504000	0.000000	185.752000	185.752000	0.000
BMS_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	79.000000	1.414214	2.000000	158.000000	2.000000	78.000000	80.000000	1.790
CL_D	2	5.500000	0.707107	0.500000	11.000000	0.500000	5.000000	6.000000	12.856
SELE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTE_D	2	3.150000	0.212132	0.045000	6.300000	0.045000	3.000000	3.300000	6.734
PH_D	2	34.500000	0.707107	0.500000	69.000000	0.500000	34.000000	35.000000	2.050
NO3_N_D	2	0.950000	0.070711	0.005000	1.900000	0.005000	0.900000	1.000000	7.443
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
P_D	2	0.650000	0.028284	0.000800	1.300000	0.000800	0.630000	0.670000	4.351
PO4_P_D	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TPO4_P_D	2	0.200000	0.0	0.0	0.400000	0.0	0.200000	0.200000	0.0
CA_D	2	90.000000	2.828427	8.000000	180.000000	8.000000	88.000000	92.000000	3.143
CL_D	2	42.000000	1.414214	2.000000	84.000000	2.000000	41.000000	43.000000	3.367
SUSPAT_D	2	208.000000	5.656854	32.000000	416.000000	32.000000	204.000000	212.000000	2.720
SO4_S_D	2	62.000000	0.0	0.0	124.000000	0.0	62.000000	62.000000	0.0
TURB_D	2	60.000000	0.0	0.0	120.000000	0.0	60.000000	60.000000	0.0
DOC_D	2	6.000000	1.414214	2.000000	12.000000	2.000000	5.000000	7.000000	23.570
SI_D	2	8.050000	0.070711	0.005000	16.100000	0.005000	8.000000	8.100000	0.878

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=34

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
K_[illegible]	2	4.000000	0.0	0.0	8.000000	0.0	4.000000	4.000000	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	4.205460	0.313022	0.097983	8.410920	0.097983	3.984120	4.426800	7.443
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[illegible]	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
[illegible]	2	0.612000	0.000000	0.000000	1.224000	0.000000	0.612000	0.612000	0.000
[illegible]	2	17.218950	0.151250	0.022877	34.437900	0.022877	17.112000	17.325900	0.878
[illegible]	2	185.752000	0.000004	0.000000	371.504000	0.000000	185.752000	185.752000	0.000

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=35

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
REP	2	1.500000	0.707107	0.500000	3.000000	0.500000	1.000000	2.000000	47.140
NH3_N	2	0.100000	0.0	0.0	0.200000	0.0	0.100000	0.100000	0.0
CA	2	83.000000	1.414214	2.000000	166.000000	2.000000	82.000000	84.000000	1.704
CC	2	5.000000	1.414214	2.000000	10.000000	2.000000	4.000000	6.000000	28.284
CL	2	43.000000	1.414214	2.000000	86.000000	2.000000	42.000000	44.000000	3.289
COLOR	2	2.500000	0.0	0.0	5.000000	0.0	2.500000	2.500000	0.0
F	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARD	2	316.000000	1.414214	2.000000	632.000000	2.000000	315.000000	317.000000	0.448
SULFE	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TOTFE	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
MG	2	32.000000	0.0	0.0	64.000000	0.0	32.000000	32.000000	0.0
NO3_N	2	0.850000	0.212132	0.045000	1.700000	0.045000	0.700000	1.000000	24.957
NO2_N	2	0.010000	0.000000	0.000000	0.020000	0.000000	0.010000	0.010000	0.000
N	2	0.535000	0.049497	0.002450	1.070000	0.002450	0.500000	0.570000	9.252
COLOR	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_P	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TPO4_P	2	0.130000	0.014142	0.000200	0.260000	0.000200	0.120000	0.140000	10.879
K	2	3.500000	0.0	0.0	7.000000	0.0	3.500000	3.500000	0.0
SI	2	8.350000	0.070711	0.005000	16.700000	0.005000	8.300000	8.400000	0.847
NA	2	77.000000	1.414214	2.000000	154.000000	2.000000	76.000000	78.000000	1.837
DISPAT	2	617.500000	24.748737	612.500000	1235.000000	612.500000	600.000000	635.000000	4.008
SUSPAT	2	124.500000	3.535534	12.500000	249.000000	12.500000	122.000000	127.000000	2.840
SI4_S	2	62.000000	0.0	0.0	124.000000	0.0	62.000000	62.000000	0.0
TURB	2	45.000000	7.071068	50.000000	90.000000	50.000000	40.000000	50.000000	15.713
OLC	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
NO3	2	0.121590	0.0	0.0	0.243180	0.0	0.121590	0.121590	0.0
NF3	2	3.762760	0.939066	0.881845	7.525560	0.881845	3.098760	4.426800	24.957
NO2	2	0.032850	0.000000	0.000000	0.065700	0.000000	0.032850	0.032850	0.000
PO4	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
TPO4	2	0.397900	0.043275	0.001873	0.795600	0.001873	0.367200	0.428400	10.879
SIO2	2	17.860450	0.151250	0.022877	35.721300	0.022877	17.753700	17.967600	0.847
CA	2	185.752000	0.000004	0.000000	371.504000	0.000000	185.752000	185.752000	0.000
FE3_SLF	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA_D	2	77.000000	1.414214	2.000000	154.000000	2.000000	76.000000	78.000000	1.837
CC_D	2	5.000000	1.414214	2.000000	10.000000	2.000000	4.000000	6.000000	28.284
SULFE_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTFE_D	2	2.000000	0.0	0.0	4.000000	0.0	2.000000	2.000000	0.0
MG_D	2	32.000000	0.0	0.0	64.000000	0.0	32.000000	32.000000	0.0
NO3_N_D	2	0.850000	0.212132	0.045000	1.700000	0.045000	0.700000	1.000000	24.957
NO2_N_D	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_D	2	0.535000	0.049497	0.002450	1.070000	0.002450	0.500000	0.570000	9.252
PO4_P_D	2	0.020000	0.0	0.0	0.040000	0.0	0.020000	0.020000	0.0
TPO4_P_D	2	0.130000	0.014142	0.000200	0.260000	0.000200	0.120000	0.140000	10.879
CA_D	2	83.000000	1.414214	2.000000	166.000000	2.000000	82.000000	84.000000	1.704
CL_D	2	43.000000	1.414214	2.000000	86.000000	2.000000	42.000000	44.000000	3.289
SUSPAT_D	2	124.500000	3.535534	12.500000	249.000000	12.500000	122.000000	127.000000	2.840
SI4_S_D	2	62.000000	0.0	0.0	124.000000	0.0	62.000000	62.000000	0.0
TURB_D	2	45.000000	7.071068	50.000000	90.000000	50.000000	40.000000	50.000000	15.713
OLC_D	2	6.000000	0.0	0.0	12.000000	0.0	6.000000	6.000000	0.0
SI_D	2	8.350000	0.070711	0.005000	16.700000	0.005000	8.300000	8.400000	0.847

APPENDIX A-3-4

GULF STANDARD WATER CHEM DEC-JAN 1975
SITE=35

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	LOW	HIGH	C.V. %
A_O	2	3.500000	0.0	0.0	7.000000	0.0	3.500000	3.500000	0.0
[illegible]	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO3_S	2	3.762780	0.939066	0.881845	7.525560	0.881845	3.098760	4.426800	24.957
NO2_S	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PO4_S	2	0.061200	0.000000	0.000000	0.122400	0.000000	0.061200	0.061200	0.000
TKN_S	2	0.397800	0.043275	0.001873	0.795600	0.001873	0.367200	0.428400	[illegible]
SIO2_S	2	17.860650	0.151250	0.022877	35.721300	0.022877	17.753700	17.967600	0.847
SO4_S	2	185.752000	0.000004	0.000000	371.504000	0.000000	185.752000	185.752000	0.000

2.4.2. Phytoplankton

2.4.2.2. Methods

Replicate samples were collected at all stations sampled. Phytoplankton was collected with pump-type samplers, concurrently with chemical samples. The samples were transferred to opaque bottles containing premeasured quantities of Lugol's preservative. These samples were then stored in the dark until processing. In addition, samples of live plankton were collected in one-pint plastic bottles and refrigerated.

The cooled live phytoplankton samples were studied upon their return to the laboratory. Samples were concentrated by centrifugation (for 20 minutes) and mounted in water for microscopic examination. A qualitative species analysis was then made, with emphasis on the nondiatom species that are difficult to identify in preserved condition.

In the laboratory, preserved phytoplankton samples were prepared for study using a modification of the membrane filter concentration technique of APHA (1971). Based on preliminary work, an aliquot size of 100 ml was chosen to produce a preparation that would have densities of organisms optimal for taxonomy and enumeration. This 100 ml aliquot was filtered through a 47-mm cellulose acetate membrane (Millipore) filter of 0.45-micron pore size. The following series of stain and dehydration processes was then performed on the filtered sample *in situ* (Northern States Power Co. 1974).

a) water rinse
b) acid fuchsin stain (aqueous)
c) water rinse
d) 50% isopropanol
e) 90% isopropanol
f) 100% isopropanol (2 washes)
g) Xylene (2 rinses)

The filter was allowed to soak in the final xylene rinse for 15 minutes, was trimmed and mounted on a microscope slide with several drops of Permount, and was then covered with an ultrathin coverglass. The slides were labeled and retained in a permanent voucher collection.

Quantitative counts were made using two transects that cross near the center of the mounted Millipore filter. All organisms within these fields were identified and counted at 1000X. Identifications were aided by using the data from the live samples and by using species lists prepared from Hyrax preparations of cleaned diatoms (see below). Finally, large organisms that were too uncommon to be observed in significant numbers in the counted strips were identified and counted with a 100X scan of the entire slide. Counts were expressed as cells per milliliter of the original sample. When colonies containing vast numbers of cells were encountered (as with certain colonial blue-green algae), ten colonies were counted and cell numbers determined from the mean number of cells per colony.

Additional subsamples were specially treated for the study of diatoms according to the method of Patrick and Reimer (1966). The organic contents of the cells, as well as organic detrital matter in the samples, were removed by oxidation in boiling nitric acid or by ashing. The empty diatom frustules were washed and dehydrated with alcohol, then washed with xylene and mounted in Hyrax. These slides were used to aid in the taxonomy of certain diatoms and will also serve as vouchers.

The preceding techniques will be used at all sites unless phytoplankton communities become composed of large numbers of green and blue-green algae. The alternate method that would be used in this unlikely event would involve the counting of settled samples in Palmer-Maloney cell wet mounts, supplemented with the Hyrax mounts of diatoms (EPA 1973).

2.4.2.3. Results

A total of 142 phytoplankton species were observed in the samples collected during October - November 1974. Phytoplankton data for October - November are presented in Appendices A-4-1 and A-4-2. For the single replicate of December 1974 - January 1975 phytoplankton samples analyzed to date, 81 species have been observed (Appendices A-5-1 and A-5-2). During the second sampling period, diatoms were again the dominant algal group.

In October - November 1974, phytoplankton abundance was quite low in samples from headwater stations. At all of these stations the dominant group of phytoplankton was the diatoms. The most abundant species included: Achnanthes minutissima, Anomoneis sphaephora, Fragilaria construens, Navicula cryptocephala, Navicula viridula, Nitzschia frustulum, N. linearis, Cymbella affinis, and Synedra amphicephala. At Tract stations diatoms were also generally dominant, with the exception of Station 8 where Chrysidiastrum catenatum, a species of Chrysophyceae, was dominant. The most abundant species at Tract stations included: Achnanthes minutissima, Cymbella affinis, Navicula salinarum, Epithemia sorex, Synedra amphicephala; and the blue-green algae, Merismopedia glauca and M. tennuissima. In Yellow Creek stations the most abundant organisms were the diatoms, including the following species: Achnanthes minutissima, Cyclotella meneghinina, Cymbella affinis, Epithemia sorex, and Synedra amphicephala. In the White River the most abundant phytoplankton were again diatoms. The dominant species included: Achnanthes minutissima, Epithemia sorex, Fragilaria capucina, Navicula salinarum, Cymbella affinis, Nitzschia frustulum, Diatoma vulgare, and Gomphonema olivaceum.

APPENDIX A-4-1

LIST OF PHYTOPLANKTON SPECIES OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, OCTOBER - NOVEMBER 1974.

CYANOPHYTA
- Anabaena sp.
- Calothrix epiphytica
- Calothrix sp.
- Chroococcus limneticus
- Lyngbya sp.
- Merismopedia glauca
- M. tenuissima
- Oscillatoria sp.
- Oscillatoria tenuis
- Rivularia sp.
- Schizothrix calcicola

CHLOROPHYTA
- Ankistrodesmus convolutus
- A. falcatus
- Carteria dissecta
- Chlamydomonas globosa
- Cladophora fracta
- Cladophora sp.
- Closterium jenneri
- C. leibleinii
- C. moniliferum
- C. parvulum
- C. venus
- Coelastrum microporum
- Crucigenia quadricauda
- Dictyosphaerium pulchellum
- Lagerheimia ciliata
- Oocystis borgei
- Pandorina morum
- Quadrigula chodatii
- Scenedesmus bijuga
- S. quadricauda
- Sphaerocystis schroeteri
- Spirogyra sp.
- Ulothrix sp.
- Unidentified chlorophyte
- Zygnema sp.

EUGLENOPHYTA
- Euglena proxima
- Euglena sp.
- Phacus sp.
- Trachelomonas sp.
- T. volvocina

F. virescens
Gomphonema angustatum
G. intricatum
G. lanceolatum
G. olivaceum
G. parvulum
G. ventricosum
Gyrosigma acuminatum
Hannaea arcus
Hantzschia amphioxys
Melosira granulata
Melosira sp.
M. varians
Meridion circulare
Navicula capitata
N. cryptocephala
N. decussis
N. exigua
N. minima
N. peregrina
N. pupula
N. radiosa
N. rhynchocephala
N. salinarum
Navicula sp.
N. tripunctata
N. varidula
Neidium iridis
Nitzschia acicularis
N. apiculata
N. capitellata
N. denticula
N. dissipata
N. frustulum
N. gracilis
N. holsatica
N. linearis
N. longissima
N. palea
N. sigma
N. sigmoidea
N. tryblionella
Pinnularia brebissonii
Pinnularia sp.

PYRRHOPHYTA
Gymnodinium sp.
Peridinium pusillum

CYRPTOPHYTA
Cryptomonas erosa
Rhodomonas minuta
Unidentified flagellate

CHRYSOPHYTA
Achnanthes lanceolata
A. minutissima
Amphora ovalis
A. ovalis var. pediculus
A. montana
Anomoeneis sphaeophora
Asterionella formosa
Caloneis amphisbaena
Campylodiscus hibernicus
Chrysidiastrum catenatum
Cocconeis pediculus
C. placentula
Cyclotella meneghiniana
Cylindrotheca aciculare
C. gracilis
Cylindrotheca sp.
Cymatopleura elliptica
C. solea
Cymbella affinis
C. cesati
C. sinuata
C. tumida
C. ventricosa
Diatoma tenue
D. Tenue var. elongatum
D. vulgare
Didymosphenia geminata
Epithemia sorex
E. turgida
Fragilaria capucina
F. construens
F. crotonensis
F. leptostauron
F. pinnata
F. vaucheriae

Pleurosigma delicatulum
Rhoiscosphenia curvata
Rhopalodia gibba
R. gibberula
Stephanodiscus astraea
S. niagarae
S. tenuis
Surirella angustata
S. ovalis
S. ovata
Surirella sp.
Synedra amphicephala
S. pulchella
S. rumpens
S. ulna

APPENDIX A-4-2

PHYTOPLANKTON OBSERVED DURING OCTOBER - NOVEMBER 1974
RBOSP AQUATIC BASELINE STUDIES.
(Results are expressed as the number of cells/ml.)

APPENDIX A-4-2

	Station 1		Station 2		Station 3	
	A	B	A	B	A	B
CYANOPHYTA						
Chroococcus limneticus	-	-	-	-	-	-
Oscillatoria sp.	-	1	-	-	-	8
Oscillatoria tenuis	-	-	13	-	24	-
Schizothrix calciola	14	2	25	7	-	-
CHLOROPHYTA						
Cladophora fracta	-	3	-	-	-	-
Cladophora sp.	1	-	-	-	-	-
Closterium parvulum	-	-	1	-	-	-
Coelosphaerium microporum	-	-	-	-	22	-
Crucigenia quadricauda	-	-	4	-	-	-
Lagerheimia ciliata	-	-	1	-	-	-
Spirogyra sp.	-	-	-	2	-	1
Unidentified chlorophyte	14	-	8	-	32	-
Ulothrix sp.	-	-	-	-	-	-
CRYPTOPHYTA						
Cryptomonas erosa	3	-	-	-	16	-
Rhodomonas minutum	5	1	9	3	-	5
CHRYSOPHYTA						
Achnanthes lanceolata	-	-	-	5	16	24
A. minutissima	51	9	40	28	54	59
Anomoneis sphaeophora	-	-	-	-	108	21
Amphora ovalis	-	-	2	2	-	3
Amphora ovalis var. *pediculus*	1	1	-	-	-	-
Asterionella formosa	1	-	-	-	-	-
Caloneis amphisbaena	-	-	-	-	-	1
Campylodiscus hibernicus	-	-	-	-	-	3
Cocconeis pediculus	-	-	-	-	-	5

APPENDIX A-4-2 (Continued)

	Station					
	1		2		3	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
C. placentula	-	-	-	-	-	-
Cyclotella meneghinina	1	1	-	4	-	-
Cymatopleura solea	-	-	-	-	-	-
Cymbella affinis	2	3	3	14	14	13
C. ventricosa	-	-	-	-	-	-
Diatoma tenue	-	-	1	-	-	-
D. vulgare	-	-	-	4	-	-
Epithemia sorex	-	-	-	2	27	-
E. turgida	-	-	-	-	-	-
Fragilaria construens	-	-	-	-	100	-
F. crotonensis	-	-	-	-	-	-
F. pinnata	-	-	2	-	-	-
F. vaucheria	1	-	-	-	-	-
Gomphonema angustatum	-	1	-	-	-	-
G. intricatum	-	1	2	-	-	-
G. olivaceum	-	-	1	1	11	27
G. parvulum	-	-	-	4	-	-
G. ventricosum	-	-	-	-	-	19
Gyrosigma acuminatum	10	2	1	-	-	-
Hannaea arcus	-	-	-	-	-	8
Navicula cryptocephala	10	1	-	1	84	24
N. decussis	-	-	-	-	-	-
N. minima	-	-	-	-	-	24
N. rhynchocephala	-	-	-	-	-	13
N. salinarum	-	1	6	8	-	37
N. tripunctata	-	2	-	1	27	-

APPENDIX A-4-2 (Continued)

	Station					
	1		2		3	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
N. viridula	2	-	-	-	103	-
N. sp.	-	1	2	2	-	19
Nitzschia acicularis	1	1	-	-	-	5
N. apiculatae	-	-	-	-	-	11
N. capitella	-	-	-	-	-	-
N. denticula	-	-	-	1	5	-
N. dissipata	1	-	-	-	16	13
N. frustulum	10	1	14	6	111	-
N. gracilis	-	-	-	-	8	8
N. holsatica	-	-	-	2	-	-
N. linearis	3	1	5	10	97	-
N. palea	-	2	5	2	11	24
N. sigmoidea	-	-	1	-	-	3
N. vermicularis	-	-	-	-	-	43
Pinnularia brebissonii	-	-	-	-	41	56
P. subcapitatis	1	-	-	-	-	-
Pleurosigma delicatulum	-	-	-	-	-	-
Rhoicosphenia curvata	-	-	-	-	-	-
Stephanodiscus tenuis	3	-	4	-	14	-
Surirella ovalis	-	-	2	2	30	45
S. ovata	-	-	2	-	-	11
Synedra amphicephala	-	-	31	8	-	-
S. ulna	-	-	-	-	-	13

APPENDIX A-4-2 (Continued)

	Station					
	4		5		7	
	A	B	A	B	A	B
CYANOPHYTA						
Chroococcus limneticus	11	-	-	-	24	-
Merismopedia tenuissima	-	22	-	-	-	-
Oscillatoria sp.	1	-	-	-	-	-
Schizothrix calcicola	11	-	-	-	-	19
CHLOROPHYTA						
Carteria dissecta	-	-	1	-	-	-
Chlamydomonas globosa	3	-	-	-	-	-
Closterium leibleinii	-	-	1	1	-	-
C. jenneri	-	-	-	-	1	-
C. moniliferum	-	-	-	-	-	-
C. parvulum	-	-	1	-	-	-
Spirogyra sp.	-	-	1	2	3	89
Zygnema sp.	-	5	-	-	32	124
Unidentified chlorophyte	7	42	14	-	80	32
CRYPTOPHYTA						
Cryptomonas erosa	3	4	3	2	8	5
Rhodomonas minutum	3	5	3	2	13	8
EUGLENOPHYTA						
Euglena sp.	-	-	1	-	-	-
Trachelomonas volvocina	1	-	-	-	8	-
CHRYSOPHYTA						
Achnanthes lanceolata	11	3	-	-	29	-
A. minutissima	45	39	14	8	1242	599
Anomoneis sphaeophora	-	-	-	-	-	-
Amphora ovalis	1	1	-	-	3	3
A. ovalis var. *pediculus*	-	24	-	-	-	-
Asterionella formosa	-	-	-	-	-	-

APPENDIX A-4-2 (Continued)

	Station					
	4		5		7	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
Caloneis amphisbaena	-	-	-	-	-	-
C. bacillum	-	-	-	1	-	-
Cocconeis pediculus	1	-	7	-	-	-
C. placentula	-	-	-	6	-	-
Cyclotella meneghinina	1	-	1	3	5	-
Cymatopleura solea	-	-	-	-	-	-
Cymbella affinis	74	7	-	10	5	5
C. tumida	1	-	-	-	-	-
C. ventricosa	-	-	-	-	-	-
Diatoma tenue	-	-	3	5	-	-
D. vulgare	4	1	1	1	8	-
Epithemia sorex	-	3	-	2	-	5
E. turgida	-	-	-	-	-	-
Fragilaria construens	-	1	3	-	-	-
F. crotonensis	-	4	-	-	-	-
Gomphonema angustatum	-	-	-	-	-	-
G. intricatum	-	-	1	-	-	-
G. olivaceum	1	3	-	-	8	-
G. parvulum	-	-	1	-	-	-
G. ventricosum	-	-	-	-	3	-
Gyrosigma acuminatum	-	-	-	-	-	-
Hannaea arcus	-	-	-	-	-	-
Meridion circulare	-	1	-	-	-	-
Navicula cryptocephala	4	8	1	1	8	8
N. decussis	3	-	-	-	-	-
N. minima	-	3	-	-	-	-
N. radiosa	-	-	1	-	-	-
N. rhynchocephala	-	-	-	-	-	-

APPENDIX A-4-2 (Continued)

	Station					
	4		5		7	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
N. salinarum	35	393	-	2	5	11
N. tripunctata	-	-	-	-	-	-
N. sp. 1	-	-	-	-	-	-
N. viridula	-	-	-	-	-	-
Nitzschia acicularis	3	4	2	1	5	-
N. apiculatae	-	1	-	-	-	-
N. capitella	-	-	-	1	-	-
N. denticula	-	-	-	-	-	-
N. dissipata	-	-	-	1	-	3
N. frustulum	11	32	2	5	8	11
N. gracilis	-	-	-	9	-	-
N. linearis	9	51	2	1	3	-
N. palea	-	-	2	3	3	-
N. sigmoidea	-	-	-	-	3	-
N. tripunctata	-	1	-	2	-	5
N. vermicularis	-	-	-	-	-	-
Pinnularia brebissonii	-	3	-	-	-	-
Rhoicosphenia curvata	-	-	-	2	-	-
Surirella ovalis	7	12	-	-	5	-
S. ovata	-	54	1	-	-	5
Synedra amphicephala	-	-	36	26	-	-
S. nana	-	-	1	-	-	-
S. pulchella	-	-	1	-	5	-
S. ulna	-	-	2	3	-	-

APPENDIX A-4-2 (Continued)

	Station					
	8		9		13	
	A	B	A	B	A	B
CYANOPHYTA						
Chroococcus limneticus	22	-	11	11	-	22
Merismopedia glauca	-	-	-	64	21	-
Oscillatoria tenuis	-	-	4	-	-	-
CHLOROPHYTA						
Chlamydomonas globosa	-	5	-	3	3	-
Closterium moniliferum	-	-	-	1	-	-
Spirogyra sp.	-	-	-	2	-	-
Zygnema sp.	-	-	1	1	-	-
Unidentified chlorophyte	49	16	-	-	8	22
CRYPTOPHYTA						
Cryptomonas erosa	-	-	1	11	3	-
Rhodomonas minutum	43	-	4	-	13	30
CHRYSOPHYTA						
Achnanthes lanceolata	3	179	-	8	45	5
A. minutissima	89	48	27	334	29	235
Chrysidiastrum catenatum	443	1100	22	-	29	65
Cocconeis pediculus	-	-	1	3	-	-
C.placentula	-	3	-	-	-	-
Cymbella affinis	3	-	167	24	-	-
C. ventricosa	-	-	-	5	-	-
Epithemia sorey	-	3	1	-	-	-
E. turgida	-	-	-	8	-	-
Fragilaria crotonensis	-	-	35	59	-	8
Gomphonema intricatum	-	-	-	-	-	11
G. olivaceum	8	11	3	13	3	-
G. parvulum	-	-	-	-	-	14
G. ventricosum	-	-	-	5	-	-
Gyrosigma acuminatum	-	-	-	1	1	-

APPENDIX A-4-2 (Continued)

	Station					
	8		9		13	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
Meridion circulare	-	-	1	3	-	14
Navicula sp.	-	-	-	-	-	8
N. cryptocephala	-	3	4	8	11	3
N. salinarum	-	3	-	8	104	392
N. viridula	-	13	1	3	-	-
Nitzschia acicularis	-	3	-	11	5	3
N. apiculatae	-	-	-	11	-	-
N. denticula	-	-	3	-	-	-
N. frustulum	3	8	3	-	5	76
N. linearis	-	1	3	-	5	14
N. palea	-	-	-	-	5	3
N. sigma	-	-	-	-	-	5
N. sigmoidea	-	-	-	-	-	-
N. vermicularis	-	-	-	13	-	3
Pinnularia brebissonii	-	-	-	-	-	3
Stephanodiscus niagarae	-	-	-	1	3	-
S. tenuis	-	-	11	-	-	-
Surirella ovalis	-	-	-	3	1	-
Synedra amphicephala	-	-	-	8	-	57
S. pulchella	-	-	5	-	-	-
S. ulna	-	3	18	8	1	5
Diatoma vulgare	-	-	-	16	-	-
Caloneis amphisbaena	-	-	-	1	1	-
Cyclotella meneghinina	-	-	-	-	8	-
Melosira granulata	-	-	-	-	1	-
Amphora ovalis	-	-	-	-	-	5
Fragilaria capucina	-	-	-	1	-	-

APPENDIX A-4-2 (Continued)

	Station					
	14		19		20	
	A	B	A	B	A	B
CYANOPHYTA						
Anabaena sp.	-	-	4	-	-	-
Calothrix epiphytica	3	-	-	-	-	-
Chroococcus limneticus	43	21	4	-	-	22
Merismopedia glauca	-	128	-	-	-	-
M. tenuissima	65	-	-	-	86	-
Schizothrix calciola	-	-	2	-	-	-
CHLOROPHYTA						
Ankistrodesmus falcatus	3	3	5	-	-	-
Chlamydomonas globosa	-	-	-	2	-	-
Dictyosphaerium pulchellum	11	-	17	-	-	-
Quadrigula chodatii	5	-	-	-	-	-
Scenedesmus quadricauda	5	-	-	-	-	-
Spirogyra sp.	-	21	-	-	-	4
Zygnema sp.	-	43	-	-	-	-
Unidentified chlorophyte	16	21	34	-	35	41
CRYPTOPHYTA						
Cryptomonas erosa	8	11	-	2	8	-
Rhodomonas minutum	3	-	19	-	8	-
EUGLENOPHYTA						
Euglena proxima	-	-	1	-	-	-
CHRYSOPHYTA						
Achnanthes lanceolata	5	3	-	-	-	-
A. minutissima	342	638	9	2	108	165
Anomoneis sphaeophora	-	-	-	-	-	3
Amphora ovalis var. *pediculus*	-	3	-	-	-	-
Caloneis amphisbaena	-	-	-	-	-	-
Chrysidiastrum catenatum	-	-	-	-	-	5

APPENDIX A-4-2 (Continued)

	Station					
	14		19		20	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
Cocconeis placentula	-	-	-	3	-	-
C. pediculus	-	-	-	-	-	-
Cyclotella meneghinina	4	3	2	4	173	216
Cylindrotheca gracilis	-	-	1	-	3	8
Cymbella affinis	35	-	-	-	351	527
C. tumida	-	3	-	-	-	-
C. ventricosa	-	-	-	-	3	-
Diatoma vulgare	5	-	-	8	3	-
Epithemia sorex	47	67	-	3	3	-
Fragilaria capucina	-	-	-	-	-	14
F. construens	-	-	-	-	-	5
F. crotonensis	5	-	-	-	-	-
F. vaucheriae	-	-	-	-	3	3
Gomphonema intricatum	3	-	-	-	5	-
G. lanceolata	-	-	-	-	-	19
G. olivaceum	3	-	-	-	-	-
G. parvulum	1	-	-	-	-	3
G. ventricosum	5	-	-	-	-	5
Hantzschia amphioxyus	-	-	2	-	-	-
Melosira granulata	-	-	-	-	-	-
Navicula sp.	-	-	-	-	-	-
N. cryptocephala	1	-	1	3	11	16
N. rhynchocephala	-	-	-	6	-	-
N. salinarum	3	19	-	4	5	24
N. tripunctata	1	-	-	-	-	3
N. viridula	-	8	-	-	-	3
Nitzschia acicularis	3	3	3	2	-	-
N. apiculatae	-	-	-	1	3	-

APPENDIX A-4-2 (Continued)

	Station					
	14		19		20	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
N. denticula	4	5	-	-	-	-
N. dissipata	1	-	-	-	-	3
N. frustulum	47	37	8	-	27	17
N. gracilis	-	-	-	2	-	-
N. linearis	-	-	-	-	-	3
N. palea	4	3	1	2	-	3
N. trybionella	-	-	1	-	-	-
Pinnularia brebissonii	-	-	-	1	-	-
Pleurosigma delicatulum	-	-	-	-	-	-
Rhopalodia gibba	-	-	1	-	-	-
Stephanodiscus astraea	-	-	-	2	-	-
S. tenuis	-	-	3	-	5	3
Surirella ovalis	-	-	-	-	-	-
Synedra amphicephala	68	43	-	-	5	-
S. pulchella	3	-	-	-	5	11
S. ulna	15	11	-	2	-	5

APPENDIX A-4-2 (Continued)

	Station					
	21		22		23	
	A	B	A	B	A	B
CYANOPHYTA						
Anabaena sp.	-	-	-	-	6	-
Merismopedia glauca	1	-	-	-	-	-
Oscillatoria sp.	-	-	-	-	33	-
Oscillatoria tenuis	-	35	-	-	-	-
Schizothrix calcicola	35	-	12	-	-	11
CHLOROPHYTA						
Ankistrodesmus convolutus	3	-	-	-	-	-
A. falcatus	-	-	-	3	-	5
Cladophora fracta	-	-	-	-	15	-
Closterium moniliferum	-	-	-	-	-	-
Coelastrum microporum	-	-	-	-	-	22
Spirogyra sp.	85	-	60	2	-	-
Zygnema sp.	-	-	1	-	-	-
Unidentified chlorophyte	-	38	-	38	-	32
CRYPTOPHYTA						
Cryptomonas erosa	-	-	9	-	6	-
Rhodomonas minutum	-	-	6	16	12	-
EUGLENOPHYTA						
Phacus sp.	-	-	-	-	-	3
CHRYSOPHYTA						
Achnanthes lanceolata	-	-	-	-	3	5
Achnanthes minutissima	85	78	60	100	6	19
Amphora ovalis var. *pediculus*	-	-	-	-	3	-
Caloneis amphisbaena	-	-	-	-	1	-
Cocconeis pediculus	5	-	-	-	21	14
C. placentula	21	-	-	-	9	-
Cyclotella meneghinina	203	8	252	359	48	22
Cylindrotheca gracilis	-	2	-	3	-	-

APPENDIX A-4-2 (Continued)

	Station					
	21		22		23	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
Cymatopleura solea	-	-	-	-	1	-
Cymbella affinis	395	821	231	392	36	24
C. sinuata	-	-	-	-	1	-
C. tumida	1	8	-	-	1	-
C. ventricosa	-	-	-	-	6	-
Diatoma vulgare	56	-	-	-	219	54
Epithemia sorex	8	5	-	-	75	24
Fragilaria capucina	-	14	-	5	-	-
F. crotonensis	-	-	-	-	-	5
F. construens	-	5	-	-	6	-
F. leptostauron	-	-	-	-	6	-
F. pinnata	-	59	-	-	9	54
F. vaucheriae	-	-	-	-	3	11
F. virescens	-	-	-	-	-	5
Gomphonema lanceolata	-	8	-	3	-	-
G. olivaceum	19	-	-	3	36	-
G. parvulum	-	5	-	-	-	3
G. ventricosum	21	-	6	3	78	22
Gyrosigma acuminatum	-	-	-	-	1	-
Hannaea arcus	1	3	-	-	-	5
Melosira sp.	27	-	-	-	-	-
Navicula sp.	-	3	-	-	3	-
N. cryptocephala	11	5	18	5	63	19
N. salinarum	24	19	3	11	96	59
N. tripunctata	-	-	3	3	33	11
Nitzschia acicularis	-	-	-	-	3	-
N. apiculatae	-	-	3	-	-	-
N. denticula	-	-	-	-	3	-

APPENDIX A-4-2 (Continued)

	Station					
	21		22		23	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
N. dissipata	3	-	-	-	6	8
N. frustulum	-	11	3	16	81	49
N. gracilis	-	-	-	-	3	-
N. holsatica	-	-	-	-	18	-
N. linearis	-	3	-	8	3	22
N. palea	29	3	15	5	24	5
Pleurosigma delicatulum	-	-	-	-	-	-
Rhopalodia gibberula	3	-	-	-	-	-
Stephanodiscus astraea	8	-	-	-	-	-
S. tenuis	-	3	-	-	21	8
Stephanodiscus sp.	-	-	-	-	21	-
Surirella ovalis	5	-	3	-	21	-
S. ovata	-	-	-	-	9	3
Synedra amphicephala	-	5	-	8	60	-
S. pulchella	-	3	-	-	-	-
S. ulna	16	-	18	3	-	19
Navicula pupula	-	-	-	-	3	-
N. viridula	-	-	-	-	36	-

APPENDIX A-4-2 (Continued)

	Station					
	24		25		26	
	A	B	A	B	A	B
CYANOPHYTA						
Anabaena sp.	2	-	-	-	-	-
Calothrix epiphytica	-	-	-	-	-	1
Calothrix sp.	-	-	-	-	-	-
Lyngbya sp.	-	-	-	-	-	-
Merismopedia glauca	-	-	-	-	-	-
Oscillatoria sp.	1	-	-	-	-	-
Oscillatoria tenuis	-	5	-	-	-	5
Rivularia sp.	-	-	-	-	-	-
Schizothrix calcicola	2	-	-	-	-	-
CHLOROPHYTA						
Ankistrodesmus falcatus	-	-	-	-	-	-
Chlamydomonas globosa	-	-	2	-	-	-
Cladophora fracta	-	-	-	-	-	-
Cladophora sp.	-	-	-	-	-	-
Closterium moniliferum	-	-	-	-	-	-
C. parvulum	-	-	-	-	-	-
C. venus	-	-	-	-	-	-
Coelastrum microporum	-	-	-	-	-	11
Dictyosphaerium pulchellum	-	11	-	-	-	-
Oocystis borgei	-	-	-	-	-	5
Pandorina morum	-	-	-	-	-	-
Scenedesmus bijuga	3	-	-	-	-	-
Sphaerocystis schroeteri	-	27	-	-	-	-
Spirogyra sp.	-	-	-	-	-	-
Unidentified chlorophyte	-	20	-	19	-	20
CRYPTOPHYTA						
Cryptomonas erosa	2	1	2	-	-	7
Rhodomonas minutum	1	5	-	3	5	4

APPENDIX A-4-2 (Continued)

	Station					
	24		25		26	
	A	B	A	B	A	B
EUGLENOPHYTA						
Euglena sp.	-	-	-	-	-	1
Phacus sp.	-	-	-	-	-	-
Trachelomonas sp.	-	-	-	-	-	-
PYRRHOPHYTA						
Gymnodinium sp.	-	-	-	-	-	-
Peridinium pusillum	-	-	1	-	-	-
CHRYSOPHYTA						
Achnanthes lanceolata	-	1	-	-	-	-
A. minutissima	8	-	1	54	2	14
Amphora ovalis	-	-	-	-	-	1
A. ovalis var. pediculus	-	1	-	3	-	-
Caloneis amphisbaena	-	-	-	-	-	-
Chrysidiastrum catenatum	-	-	-	-	-	-
Cocconeis pediculus	3	11	5	5	3	11
C. placentula	1	-	2	24	1	-
Cyclotella meneghinina	17	5	8	16	8	11
Cylindrotheca aciculare	1	-	-	-	-	-
C. gracilis	-	-	-	-	-	1
Cylindrothece sp.	-	-	-	3	-	-
Cymatopleura elliptica	-	-	-	-	-	-
C. solea	-	1	-	-	-	-
Cymbella affinis	19	-	2	8	2	3
C. sinuata	-	-	-	-	1	-
C. tumida	-	-	-	-	-	-
C. ventricosa	-	-	-	-	-	-
Diatoma tenue var. elongatum	-	-	-	-	-	-
D. vulgare	11	8	13	14	5	3
Didymosphenia geminata	-	-	-	-	-	-

APPENDIX A-4-2 (Continued)

	Station					
	24		25		26	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
Epithemia sorex	26	12	23	38	17	14
E. turgida	-	-	-	-	-	-
Fragilaria construens	-	-	-	3	-	8
F. crotonensis	15	-	-	3	-	-
F. leptostauron	-	-	-	-	2	-
F. pinnata	-	8	-	-	4	-
F. vaucheriae	2	-	-	5	-	-
Gomphonema intricatum	2	3	3	5	1	3
G. olivaceum	5	7	3	3	5	3
G. parvulum	-	-	-	-	1	-
G. ventricosum	1	5	8	30	-	5
Gyrosigma acuminatum	-	-	-	-	1	-
Hannaea arcus	-	-	-	5	-	-
Hantzschia amphioxysis	-	-	-	-	-	-
Melosira varians	-	-	-	-	3	-
Meridion circulare	-	-	-	-	-	-
Navicula capitata	-	-	-	-	1	-
N. cryptocephala	8	16	11	16	10	8
N. exigna	-	-	-	-	-	-
N. minima	-	-	1	-	-	-
N. pupula	-	-	1	-	-	-
N. rhynchocephala	-	-	-	-	-	-
N. salinarum	32	43	27	76	26	30
N. tripunctata	3	1	-	8	1	-
N. viridula	2	-	2	3	3	-
N. sp. 1	-	-	-	-	-	-
Neidium iridis	-	-	-	-	-	-
Nitzschia acicularis	2	-	1	-	1	1

APPENDIX A-4-2 (Continued)

	Station					
	24		25		26	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
N. apiculatae	-	-	-	3	-	1
N. denticula	-	-	-	-	-	-
N. dissipata	1	4	1	3	2	-
N. frustulum	11	18	14	49	14	34
N. gracilis	2	-	2	-	-	-
N. holsatica	-	-	-	-	-	-
N. linearis	-	1	-	14	-	3
N. longissima	-	-	-	-	-	-
N. palea	4	-	2	3	3	4
N. sigma	-	-	-	-	-	-
N. sigmoidea	-	-	-	-	1	-
N. vermicularis	-	1	-	-	-	-
Pinnularia brebissonii	-	-	1	-	-	-
Pleurosigma delicatulum	-	-	-	-	-	-
Rhoicosphenia curvata	-	-	-	-	-	-
Rhopalodia gibba	-	-	-	-	-	-
Rhopalodia gibberula	-	-	-	-	-	-
Stephanodiscus astraea	-	-	-	-	-	-
S. niagarae	-	-	-	-	-	-
S. tenuis	-	8	-	5	-	4
Stephanodiscus sp.	2	-	-	-	-	-
Surirella ovalis	-	-	-	-	-	-
S. ovata	-	1	-	3	-	-
Surirella sp.	-	-	-	-	-	-
Synedra amphicephala	-	-	-	-	-	-
S. ulna	1	3	5	5	5	-

APPENDIX A-4-2 (Continued)

	Station					
	27		28		29	
	A	B	A	B	A	B
CYANOPHYTA						
Anabarna sp.	-	-	-	-	-	5
Calothrix epiphytica	-	-	-	3	-	-
Calothrix sp.	-	-	-	-	-	-
Lyngbya sp.	-	-	-	-	-	-
Merismopedia glauca	-	-	-	-	-	-
Oscillatoria sp.	-	-	2	-	-	-
Oscillatoria tenuis	-	-	-	3	-	11
Rivularia sp.	-	-	3	-	-	-
Schizothrix calcicola	-	-	-	-	1	11
CHLOROPHYTA						
Ankistrodesmus falcatus	-	-	1	5	-	-
Chlamydomonas globosa	3	-	-	-	-	-
Cladophora fracta	6	-	-	-	1	-
Cladophora sp.	-	-	-	-	-	-
Closterium leibleinii	-	-	-	-	-	3
Closterium moniliterum	-	-	-	-	-	-
C. parvulum	-	-	-	-	1	-
C. venus	-	-	-	-	-	-
Dictyosphaerium pulchellum	-	-	-	-	-	-
Oocystis borgei	-	-	-	-	-	-
Pandorina morum	-	-	-	-	-	-
Scenedesmus bijuga	-	-	-	-	-	-
Sphaerocystis schroeteri	-	-	-	-	-	-
Spirogyra sp.	-	-	-	-	-	-
Unidentified chlorphyte	-	41	-	35	-	73
CRYPTOPHYTA						
Cryptomonas erosa	-	-	1	8	-	-
Rhodomonas minutum	3	10	2	3	3	-

APPENDIX A-4-2 (Continued)

	Station					
	27		28		29	
	A	B	A	B	A	B
EUGLENOPHYTA						
Euglena sp.	-	3	-	-	-	-
Phacus sp.	-	-	-	-	-	-
Trachelomonas sp.	-	-	-	-	-	-
PYRRHOPHYTA						
Gymnodinium sp.	-	-	-	-	-	-
Peridinium pusillum	-	-	-	-	-	-
CHRYSOPHYTA						
Achnanthes lanceolata	-	3	-	-	-	-
A. minutissima	3	14	2	62	200	62
Amphora ovalis	-	-	-	-	3	-
A. ovalis var. pediculus	-	-	2	-	-	5
Caloneis amphisbaena	1	-	-	-	1	-
Chrysidiastrum catenatum	-	-	-	-	-	-
Cocconeis pediculus	15	14	9	11	9	32
C. placentula	-	-	5	-	6	8
Cyclotella meneghinina	6	12	15	30	27	151
Cylindrotheca aciculare	-	-	2	-	-	-
C. gracilis	-	-	-	-	-	5
Cylindrothece sp.	-	-	-	-	-	-
Cymatopleura elliptica	-	-	-	-	-	-
C. solea	1	-	-	-	1	-
Cymbella affinis	12	7	8	5	33	41
C. sinuata	-	-	1	-	6	-
C. tumida	1	-	-	-	1	-
C. ventricosa	-	-	-	-	9	-
Diatoma tenue var. elongatum	-	-	1	-	-	-
D. vulgare	21	1	29	24	33	24
Didymosphenia geminata	-	-	-	-	-	-

APPENDIX A-4-2 (Continued)

	Station					
	27		28		29	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
Epithemia sorex	36	30	28	46	75	62
E. turgida	-	-	-	-	-	-
Fragilaria construens	9	11	-	8	-	8
F. crotonensis	-	-	8	-	-	-
F. leptostauron	3	-	-	-	-	-
F. pinnata	6	-	5	14	9	32
F. vaucheriae	-	-	-	-	3	5
Gomphonema intricatum	-	3	-	11	30	-
G. lanceolatum	-	-	-	-	-	8
G. olivaceum	30	1	11	5	9	14
G. parvulum	-	-	1	-	-	-
G. ventricosum	9	3	11	5	51	19
Gyrosigma acuminatum	-	-	-	-	1	-
Hannaea arcus	-	-	-	-	-	-
Hantzschia amphioxysis	-	-	-	-	-	-
Melosira varians	-	-	-	-	-	-
Meridion circulare	-	-	2	-	-	-
Navicula capitata	-	-	-	-	3	-
N. cryptocephala	33	7	15	11	21	22
N. exigua	-	-	-	-	-	-
N. minima	-	-	-	-	-	-
N. pupula	-	-	-	-	-	3
N. rhynchocephala	-	-	-	-	-	-
N. salinarum	60	19	38	78	81	108
N. tripunctata	6	-	3	5	12	14
N. viridula	-	-	4	-	3	3
Navicula sp. 1	-	-	2	-	-	-
Neidium iridis	-	-	-	-	-	-

APPENDIX A-4-2 (Continued)

	Station					
	27		28		29	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
Nitzschia acicularis	12	1	1	-	-	-
N. apiculatae	-	-	-	3	-	-
N. denticula	-	-	-	-	-	-
N. dissipata	-	-	2	3	-	16
N. frustulum	24	32	14	62	33	84
N. gracilis	3	-	3	-	12	-
N. holsatica	-	-	-	-	-	-
N. linearis	-	-	-	5	3	22
N. longissima	-	-	-	-	-	3
N. palea	15	1	2	5	9	5
N. sigma	-	-	-	-	1	-
N. sigmoidea	1	-	-	-	1	-
N. vermicularis	-	-	-	-	-	-
Pinnularia brebissonii	-	-	-	-	-	-
Pleurosigma delicatulum	-	-	-	-	-	-
Rhoicosphenia curvata	-	-	-	-	-	-
Rhopalodia gibba	-	1	-	-	-	-
Rhopalodia gibberula	1	-	-	-	-	-
Stephanodiscus astraea	-	-	-	-	-	-
S. niagarae	-	-	-	-	-	-
S. tenuis	3	3	-	3	-	8
Stephanodiscus sp.	-	-	-	-	-	-
Surirella ovalis	-	-	-	-	-	-
S. ovata	1	-	1	-	-	5
Surirella sp.	-	-	-	-	-	-
Synedra amphicephala	-	-	-	-	-	3
S. ulna	1	4	12	14	15	-
S. rumpens	-	-	-	-	-	3

APPENDIX A-4-2 (Continued)

	Station					
	30		31		32	
	A	B	A	B	A	B
CYANOPHYTA						
Anabaena sp.	5	-	8	-	2	3
Calothrix epiphytica	-	-	-	5	-	-
Calothrix sp.	-	5	-	-	-	3
Lyngbya sp.	-	-	-	-	-	1
Merismopedia glauca	-	-	-	22	-	-
Oscillatoria sp.	-	-	-	-	2	-
Oscillatoria tenuis	-	8	-	3	-	-
Rivularia sp.	-	-	-	-	-	-
Schizothrix calcicola	29	-	16	-	5	-
CHLOROPHYTA						
Ankistrodesmus falcatus	-	1	-	-	-	1
Chlamydomonas globosa	-	-	-	-	2	-
Cladophora fracta	-	-	1	-	-	-
Cladophora sp.	-	-	-	8	-	-
Closterium moniliferum	-	-	-	-	-	-
C. parvulum	-	-	1	-	-	-
C. venus	-	1	-	-	-	-
Dictyosphaerium pulchellum	-	-	-	-	-	-
Oocystis borgei	-	-	-	-	-	-
Pandorina morum	-	-	-	-	-	-
Scenedesmus bijuga	-	-	-	-	-	-
Sphaerocystis schroeteri	-	54	-	11	-	-
Spirogyra sp.	-	-	8	-	-	-
Unidentified chlorphyte	-	53	-	68	-	24
CRYPTOPHYTA						
Cryptomonas erosa	-	7	-	5	-	1
Rhodomonas minutum	-	5	-	8	1	3

APPENDIX A-4-2 (Continued)

	Station					
	30		31		32	
	A	B	A	B	A	B
EUGLENOPHYTA						
Euglena sp.	-	7	-	3	-	-
Phacus sp.	-	-	-	-	-	-
Trachelomonas sp.	-	-	-	5	-	-
PYRRHOPHYTA						
Gymnodinium sp.	-	-	-	3	-	-
Peridinium pusillum	-	-	-	-	-	-
CHRYSOPHYTA						
Achnanthes lanceolata	-	-	-	-	-	-
A. minutissima	221	-	21	32	2	7
Amphora ovalis	-	1	-	-	-	-
A. ovalis var. pediculus	-	-	-	3	-	3
Caloneis amphisbaena	1	-	1	-	-	-
Chrysidiastrum catenatum	-	-	-	3	-	-
Cocconeis pediculus	21	3	43	3	6	12
C. placentula	29	-	69	-	-	-
Cyclotella meneghinina	27	14	29	27	11	27
Cylindrotheca aciculare	-	-	-	-	-	-
C. gracilis	-	3	-	-	-	3
Cylindrothece sp.	-	-	-	-	-	-
Cymatopleura elliptica	3	-	-	-	-	-
C. solea	1	-	1	-	-	-
Cymbella affinis	77	-	99	11	11	11
C. sinuata	-	-	-	-	-	-
C. tumida	1	-	1	-	-	-
C. ventricosa	8	-	21	-	-	-
Diatoma tenue var. elongatum	-	-	-	-	-	-
D. vulgare	254	7	211	5	13	8
Didymosphenia geminata	-	-	1	-	-	-

APPENDIX A-4-2 (Continued)

	Station					
	30		31		32	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
Epithemia sorex	184	31	158	68	17	31
E. turgida	-	-	-	-	-	-
Fragilaria construens	-	12	-	-	-	7
F. crotonensis	43	-	-	11	-	-
F. leptostauron	3	-	-	-	-	-
F. pinnata	-	-	-	-	-	4
F. vaucheriae	-	3	-	-	2	-
Gomphonema intricatum	-	5	-	3	-	1
G. lanceolatum	-	-	-	-	-	11
G. olivaceum	110	11	134	-	19	16
G. parvulum	-	-	-	-	-	-
G. ventricosum	19	3	85	-	10	-
Gyrosigma acuminatum	1	-	-	-	-	-
Hannaea arcus	5	-	19	-	-	1
Hantzschia amphioxysis	-	-	-	-	-	-
Melosira varians	-	-	-	-	-	-
Meridion circulare	-	-	-	-	-	-
Navicula capitata	-	-	-	-	-	-
N. cryptocephala	27	12	29	8	9	22
N. exigua	-	-	-	-	-	-
N. minima	-	-	-	-	-	-
N. pupula	-	-	-	3	-	-
N. rhynchocephala	5	-	16	-	-	-
N. salinarum	59	92	53	70	17	68
N. tripunctata	-	1	-	-	2	1
N. viridula	-	-	-	-	-	-
Navicula sp. 1	5	-	3	-	-	-
Neidium iridis	-	-	1	-	-	-

APPENDIX A-4-2 (Continued)

	Station					
	30		31		32	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
Nitzschia acicularis	-	4	-	3	-	-
N. apiculatae	-	-	8	-	-	-
N. denticula	-	-	-	-	-	-
N. dissipata	3	-	3	-	2	11
N. frustulum	-	30	-	62	9	23
N. gracilis	11	-	-	-	-	-
N. holsatica	-	-	-	-	-	-
N. linearis	-	4	-	3	2	26
N. longissima	-	-	-	-	-	-
N. palea	19	1	21	-	2	3
N. sigma	-	-	-	-	-	-
N. sigmoidea	5	-	3	-	-	-
N. vermicularis	-	-	-	-	-	-
Pinnularia brebissonii	-	-	-	-	-	-
Pleurosigma delicatulum	-	-	-	-	-	-
Rhoicosphenia curvata	5	-	8	-	-	-
Rhopalodia gibba	-	-	-	-	-	-
Rhopalodia gibberula	3	-	8	-	-	-
Stephanodiscus astraea	5	-	3	-	-	-
S. niagarae	-	-	-	-	-	-
S. tenuis	-	5	-	14	-	14
Stephanodiscus sp.	-	-	-	-	-	8
Surirella angustata	-	1	-	-	-	-
Surirella ovalis	-	-	-	-	-	-
S. ovata	3	1	1	-	-	1
Surirella sp.	-	-	-	-	-	-
Synedra amphicephala	-	-	-	-	-	-
S. ulna	37	1	51	-	11	4

APPENDIX A-4-2 (Continued)

	Station					
	33		34		35	
	A	B	A	B	A	B
CYANOPHYTA						
Anabarna sp.	3	-	-	-	-	1
Calothrix epiphytica	-	-	-	-	-	-
Calothrix sp.	-	-	-	3	8	-
Lyngbya sp.	-	-	-	-	-	-
Merismopedia glauca	-	22	-	-	-	-
Oscillatoria sp.	-	-	-	-	-	3
Oscillatoria tenuis	-	8	-	8	-	-
Rivularia sp.	-	11	-	-	-	-
Schizothrix calcicola	32	-	24	-	-	-
CHLOROPHYTA						
Ankistrodesmus falcatus	3	-	1	-	-	-
Chlamydomonas globosa	-	-	-	-	-	-
Cladophora fracta	-	-	1	-	-	1
Cladophora sp.	-	-	-	1	-	-
Closterium moniliferum	1	-	1	-	-	-
C. parvulum	-	-	-	-	-	-
C. venus	-	-	-	-	-	-
Coelastrum microporum	-	97	-	-	-	-
Dictyosphaerium pulchellum	-	-	-	-	-	-
Oocystis borgei	-	-	-	-	-	-
Pandorina morum	-	-	96	-	-	-
Scenedesmus bijuga	-	-	-	-	-	-
Sphaerocystis schroeteri	-	-	-	-	-	-
Spirogyra sp.	-	-	-	-	-	-
Unidentified chlorophyte	-	43	-	20	27	-
CRYPTOPHYTA						
Cryptomonas erosa	3	3	-	-	3	-
Rhodomonas minutum	-	5	3	1	3	-

APPENDIX A-4-2 (Continued)

	Station					
	33		34		35	
	A	B	A	B	A	B
EUGLENOPHYTA						
Euglena sp.	-	-	-	-	-	-
Phacus sp.	-	-	-	-	-	-
Trachelomonas sp.	-	-	-	-	-	-
PYRRHOPHYTA						
Gymnodinium sp.	-	-	-	-	-	-
Peridinium pusillum	-	-	-	-	-	-
CHRYSOPHYTA						
Achnanthes lanceolata	3	-	-	-	-	19
A. minutissima	27	11	9	7	8	11
Amphora ovalis	-	-	-	-	-	-
A. ovalis var. pediculus	5	-	-	-	-	-
Caloneis amphisbaena	1	-	3	1	3	1
Chrysidiastrum catenatum	-	-	-	-	-	-
Cocconeis pediculus	32	16	9	9	5	16
C. placentula	-	-	6	-	-	37
Cyclotella meneghinina	29	35	42	14	24	29
Cylindrotheca aciculare	-	-	-	-	-	3
C. gracilis	-	5	-	-	5	-
Cylindrothece sp.	-	-	-	-	-	1
Cymatopleura elliptica	1	-	-	-	-	-
C. solea	-	3	1	-	-	1
Cymbella affinis	8	19	54	24	16	13
C. sinuata	-	-	-	-	-	-
C. tumida	-	-	-	-	-	1
C. ventricosa	-	-	3	-	-	8
Diatoma tenue var. elongatum	-	-	-	-	-	-
D. vulgare	16	19	78	8	16	168
Didymosphenia geminata	-	-	-	-	-	-

APPENDIX A-4-2 (Continued)

	Station					
	33		34		35	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
Epithemia sorex	35	46	147	18	62	99
E. turgida	-	-	-	-	-	5
Fragilaria construens	-	-	-	4	11	-
F. crotonensis	-	-	-	1	14	-
F. leptostauron	-	-	-	-	-	-
F. pinnata	-	19	-	14	-	-
F. vaucheriae	-	27	9	-	3	-
Gomphonema intricatum	3	5	3	3	-	-
G. lanceolatum	-	-	-	1	8	-
G. olivaceum	21	11	42	11	3	43
G. parvulum	-	-	-	-	-	-
G. ventricosum	8	8	27	9	11	21
Gyrosigma acuminatum	1	-	-	-	-	-
Hannaea arcus	-	-	-	-	-	11
Hantzschia amphioxyus	-	-	-	-	-	-
Melosira varians	-	-	6	-	-	-
Meridion circulare	-	-	-	-	-	-
Navicula capitata	-	-	-	-	-	-
N. cryptocephala	19	22	42	11	24	24
N. exigua	5	-	-	-	-	-
N. minima	-	-	-	-	-	-
N. pupula	-	-	3	-	-	-
N. rhynchocephala	-	-	-	-	-	21
N. salinarum	56	89	114	26	84	21
N. tripunctata	-	3	18	5	-	-
N. viridula	8	-	12	3	-	-
Navicula sp. 1	-	-	-	1	-	8
Neidium iridis	-	-	-	-	-	-

APPENDIX A-4-2 (Continued)

	Station					
	33		34		35	
	A	B	A	B	A	B
CHRYSOPHYTA (cont.)						
Nitzschia acicularis	3	-	-	-	3	5
N. apiculatae	3	-	-	3	-	13
N. denticula	-	-	-	-	-	-
N. dissipata	3	8	15	-	11	3
N. frustulum	19	3	60	27	51	-
N. gracilis	-	-	3	1	-	11
N. holsatica	3	-	-	-	-	-
N. linearis	-	62	-	18	14	-
N. longissima	-	-	-	-	-	-
N. palea	5	5	18	3	3	-
N. sigma	-	-	-	-	-	-
N. sigmoidea	1	-	-	-	-	1
N. vermicularis	-	-	3	-	3	-
Pinnularia brebissonii	-	-	-	-	-	-
Pleurosigma delicatulum	-	-	1	-	-	-
Rhoicosphenia curvata	-	-	6	3	-	-
Rhopalodia gibba	-	3	-	-	-	-
Rhopalodia gibberula	-	-	-	-	-	-
Stephanodiscus astraea	-	-	-	-	-	3
S. niagarae	-	-	3	-	-	1
S. tenuis	-	-	12	-	11	-
Stephanodiscus sp.	-	14	-	8	-	-
Surirella ovalis	1	-	-	-	-	-
S. ovata	-	-	3	3	-	5
Surirella sp.	-	-	-	-	-	1
Synedra amphicephala	-	-	3	-	-	-
S. ulna	-	3	60	1	11	19

APPENDIX A-5-1

LIST OF PHYTOPLANKTON SPECIES OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, DECEMBER 1974 - JANUARY 1975

Cyanophyta
- Auabaena sp.
- Calothrix sp.
- Merismopedia tenuissima
- Oscillatoria tenuis
- Schizothrix calcicola

Chlorophyta
- Ankistrodesmus falcatus
- Chlamydomonas globosa
- Cladophora sp.
- Coelastrum microporum
- Cosmarium sp.
- Oedogonium sp.
- Sphaerocystis schroeteri
- Spirogyra sp.
- Stigeoclonium sp.
- Ulothrix zonata
- Ulothrix sp.
- Unidentified chlorophyte
- Unidentified falgellate

Cryptophyta
- Cryptomonas erosa
- Rhodomonas minuta

Euglenophyta
- Euglena proxima
- Euglena sp.
- Trachelomonas pulchella
- Trachelomonas volvocina

Chrysophyta
- Achnanthes minutissima
- Achnanthes lanceolata
- Amphora ovalis
- Caloneis amphisbaena
- Chrysidiastrum catenatum
- Cyclotella meneghiniana
- Cymbella affinis
- Cymbella ventricosa
- Diatoma hiemale
- Diatoma tenue
- Diatoma vulgare

chrysophyta (cont.)

Epithemia sorex
Fragilaria construens
Fragilaria crotonensis
Fragilaria leptostauron
Fragilaria pinnata
Fragilaria vaucheriae
Gomphonema acuminatum
Gomphonema constrictum
Gomphonema intricatum
Gomphonema lacustris
Gomphonema olivaceum
Gomphonema ventricosum
Gyrosigma acuminatum
Hannaea arcus
Hantzschia amphioxys
Melosira varians
Melosira sp.
Meridion circulare
Navicula arvensis
Navicula cryptocephala
Navicula minima
Navicula radiosa
Navicula salinarium
Navicula tripunctata
Navicula viridula
Navicula sp.
Nitzschia acicularis
Nitzschia apiculata
Nitzschia frustulum
Nitzschia gracilis
Nitzschia holsatica
Nitzschia linearis
Nitzschia longissima
Nitzschia palea
Nitzschia sigma
Nitzschia sigmoidea
Nitzschia vermicularis
Pinnularia brebissonii
Rhoicosphenia curvata
Rhopalodia gibberula

Chrysophyta (cont.)

Stephanodiscus tenuis
Surirella ovalis
Surirella ovata
Synedra amphicephala
Synedra pulchella
Synedra ulna

APPENDIX A-5-2

PHYTOPLANKTON OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, DECEMBER 1974 - JANUARY 1975

APPENDIX A-5-2

	Station					
	3A	4A	5A	8A	9A	13A
CYANOPHYTA						
Merismopedia tennuissima	-	65	-	-	-	-
CHLORPHYTA						
Ankistrodesmus falcatus	1	-	-	-	-	-
Chlamydomonas globosa	-	-	1	-	-	-
Stigeoclonium sp.	19	-	-	-	-	-
Sphaerocystis schroeteri	-	22	-	-	-	-
Spirogyra sp.	-	1	-	-	-	-
Ulothrix zonata	1	-	-	-	-	-
Ulothrix sp.	-	-	5	-	-	-
Unidentified chlorophyte	11	67	5	59	32	-
CRYPTOPHYTA						
Cryptomonas erosa	3	-	-	-	-	-
Rhodomonas minuta	5	13	12	8	19	3
EUGLENOPHYTA						
Trachelomonas pulchella	-	-	-	3	-	-
Trachelomonas volvocina	1	-	-	-	-	-
CHRYSOPHYTA						
Achnanthes minutissima	26	634	30	283	254	135
Achnanthes lanceolata	-	22	5	19	-	3
Amphora ovalis	-	5	-	-	3	-
Chrysidiastrum catenatum	-	94	4	1,833	219	24
Cocconeis pediculus	1	3	-	-	-	-
Cocconeis placentula	-	-	2	-	-	-
Cymbella affinis	1	8	3	8	11	5
Cyclotella meneghiniana	-	3	-	3	-	5
Diatoma heimale	14	-	-	-	-	-
Diatoma vulgare	-	5	40	27	16	-

APPENDIX A-5-2 (Continued)

	Station					
	3A	4A	5A	8A	9A	13A
CHRYSOPHYTA (Continued)						
Epithemia sorex	1	3	9	3	5	-
Fragilaria capucina	-	-	-	-	8	-
Fragilaria construens	-	27	-	-	-	-
Fragilaria crotonensis	-	54	-	-	-	-
Gomphonema intricatum	1	38	-	13	-	3
Gomphonema lacustris	-	130	-	-	-	-
Gomphonema olivaceum	-	27	-	8	5	13
Gomphonema ventricosum	-	3	7	5	-	-
Gyrosigma acuminatum	-	-	-	-	3	-
Meridion circulare	-	70	-	-	-	-
Navicula arvensis	-	2	-	-	-	-
Navicula cryptocephala	-	8	3	3	-	-
Navicula minima	1	3	-	-	5	-
Navicula salinarum	1	219	1	5	-	583
Navicula tripunctata	-	8	-	-	-	3
Navicula sp.	-	-	-	-	3	-
Nitzschia aciculare	-	13	-	-	-	3
Nitzschia apiculata	-	3	-	-	-	-
Nitzschia denticulata	-	-	-	-	3	-
Nitzschia dissipata	-	-	-	-	-	3
Nitzschia frustulum	19	-	-	3	3	13
Nitzschia linearis	1	980	8	11	40	40
Nitzschia palea	-	-	1	-	-	3
Nitzschia sigma	-	5	-	-	-	-
Nitzschia sigmoidea	-	-	-	-	-	-
Pinnularia brebissonii	-	3	-	-	3	3
Stephanodiscus tenuis	-	3	3	-	-	-
Surirella ovata	-	14	1	5	5	-
Surirella ovalis	-	8	-	3	-	-
Synedra amphicephala	-	49	-	-	5	-
Synedra pulchellum	-	5	-	-	-	-
Synedra ulna	7	35	3	3	13	-

APPENDIX A-5-2 (Continued)

	Station					
	14A	19A	20A	21A	22A	24A
CYANOPHYTA						
Anabena sp.	-	1	-	-	-	-
Calothrix sp.	-	2	-	-	-	6
Oscillatoria tenuis	-	-	-	-	-	3
Schizothrix calcicola	-	-	-	-	-	13
CHLOROPHYTA						
Chlamydomonas globosa	1	-	-	-	-	-
Oedogonium sp.	-	-	-	-	16	-
Stigeoclonium	-	-	-	-	-	1
Unidentified flagelate	-	3	-	-	-	-
Unidentified chlorophyte	-	19	11	13	13	43
CRYPTOPHYTA						
Cryptomonas erosa	1	1	3	-	-	-
Rhodomonas minuta	2	3	-	-	3	-
CHRYSOPHYTA						
Achnanthes minutissima	30	8	78	62	57	8
Achnanthes lanceolata	9	-	-	-	-	-
Amphora ovalis	-	-	-	-	-	3
Caloneis amphisbaena	-	-	-	-	-	3
Cocconeis pediculus	-	4	-	-	-	13
Cylindrotheca gracilis	-	-	-	-	-	3
Cymbella affinis	44	1	154	116	62	76
Cymbella ventricosa	1	-	-	-	-	8
Cyclotella meneghiniana	4	3	624	410	497	11
Diatoma tenue	-	-	3	-	-	-
Diatoma vulgare	-	25	-	-	-	688
Epithemia sorex	3	1	-	-	-	32
Fragilaria construens	-	-	-	-	5	-
Fragilaria crotonensis	5	-	-	-	-	-

APPENDIX A-5-2 (Continued)

	Station					
	14A	19A	20A	21A	22A	24A
CHRYSOPHYTA (Continued)						
Fragilaria leptostauron	-	-	-	-	-	8
Fragilaria pinnata	-	-	-	-	-	27
Fragilaria vaucheriae	-	1	-	16	3	-
Gomphonema intricatum	-	-	16	5	3	11
Gomphonema olivaceum	-	3	3	3	3	43
Gomphonema ventricosum	1	1	-	-	-	32
Gyrosigma acuminatum	-	2	-	-	-	-
Hantzchia amphioxys	-	-	-	3	5	-
Melosira varians	-	3	-	-	3	-
Melosira sp.	2	-	-	-	-	-
Navicula cryptocephala	-	3	-	13	3	16
Navicula minima	-	-	-	-	3	-
Navicula salinarum	-	7	76	57	49	57
Navicula tripunctata	-	-	-	5	11	5
Navicula viridula	-	-	-	3	-	-
Navicula sp.	-	-	-	3	-	-
Nitzschia aciculare	-	1	-	-	-	-
Nitzschia apiculata	-	2	-	-	-	-
Nitzschia dissipata	3	-	-	-	-	3
Nitzschia frustulum	-	19	16	8	22	130
Nitzschia linearis	9	-	-	3	-	3
Nitzschia longissima	-	1	-	-	-	-
Nitzschia palea	2	1	-	-	-	3
Nitzschia sigmoidea	2	-	-	-	-	-
Nitzschia vermicularis	-	-	3	-	-	-
Rhopalodia gibberula	2	-	-	-	-	-
Stephanodiscus tenuis	-	3	-	-	-	27
Surirella ovata	-	7	-	-	-	22
Synedra amphicephala	-	20	13	22	11	16
Synedra pulchellum	-	-	62	40	32	-
Synedra ulna	13	1	3	8	8	251

APPENDIX A-5-2 (Continued)

	Station					
	25A	26A	27A	28A	29A	30A
CYANOPHYTA						
Anabaena sp.	-	3	-	-	-	-
Calothrix sp.	-	11	-	22	-	-
Oscillatoria tenuis	-	-	-	11	-	-
Oscillatoria sp.	-	-	108	-	19	-
Schizothrix calcicola	-	5	-	13	-	-
CHLOROPHYTA						
Cladophora sp.	-	-	-	1	-	-
Coelastrum microporum	-	22	-	-	-	-
Cosmarium sp.	-	-	-	-	-	-
Oedogonium sp.	-	-	84	-	105	-
Spirogyra sp.	113	-	-	-	-	-
Stigeoclonium sp.	-	5	-	1	67	-
Ulothrix zonata	-	11	-	-	-	-
Ulothrix sp.	-	-	16	-	-	-
Unidentified chlorophyte	-	57	-	94	-	-
CRYPTOPHYTA						
Cryptomonas erosa	-	3	-	-	-	-
Rhodomonas minuta	5	-	-	-	5	11
EUGLENOPHYTA						
Euglena proxima	-	-	-	3	-	-
Euglena sp.	-	-	3	-	-	3
CHRYSOPHYTA						
Achnanthes minutissima	3	35	59	8	70	-
Achnanthes lanceolata	-	-	11	-	24	-
Amphora ovalis	-	3	-	3	-	-
Calonies amphisbaena	-	3	5	13	-	-
Cocconeis pediculus	-	27	11	54	40	24
Cocconeis placentula	16	-	3	-	-	-
Cymatopleura solea	-	-	-	-	5	5

APPENDIX A-5-2 (Continued)

	Station					
	25A	26A	27A	28A	29A	30A
CHRYSOPHYTA (Continued)						
Cymbella affinis	46	92	35	86	73	51
Cymbella tumida	-	-	-	-	3	-
Cymbella ventricosa	30	-	-	-	-	-
Cyclotella meneghiniana	22	13	24	8	16	22
Diatoma vulgare	373	456	440	651	589	675
Epithemia sorex	19	35	24	46	30	13
Fragilaria construens	-	13	-	11	-	-
Fragilaria leptostauron	5	-	3	8	5	8
Fragilaria pinnata	-	13	-	11	-	-
Fragilaria vaucheriae	-	16	-	-	-	-
Gomphonema constrictum	-	-	3	-	-	-
Gomphonema intricatum	5	19	13	19	-	-
Gomphonema olivaceum	-	22	-	19	-	-
Gomphonema ventricosum	57	-	81	121	89	92
Hannea arcus	-	3	-	-	-	-
Hantzchia amphioxys	-	-	-	3	-	-
Melosira varians	-	-	-	3	-	-
Navicula cryptocephala	24	27	22	30	30	22
Navicula radiosa	-	3	-	-	-	-
Navicula salinarum	19	43	13	86	13	13
Navicula tripunctata	-	5	-	5	-	-
Navicula viridula	-	-	-	-	5	-
Nitzschia apiculata	-	3	-	5	-	-
Nitzschia dissipata	27	3	32	13	27	32
Nitzschia frustulum	-	127	-	111	-	-
Nitzschia gracilis	-	3	-	-	-	-
Nitzschia holsatica	-	-	-	43	-	-

APPENDIX A-5-2 (Continued)

	Station					
	25A	26A	27A	28A	29A	30A
CHRYSOPHYTA (Continued)						
Nitzschia linearis	124	8	-	5	38	24
Nitzschia palea	8	3	5	-	11	3
Nitzschia sigmoidea	-	-	-	-	3	-
Pinnularia brebessonii	-	-	-	5	-	-
Rhoicosphenia curvata	-	-	-	8	-	-
Rhopalodia gibberula	5	-	-	-	-	-
Stephanodiscus tenuis	-	22	-	22	-	-
Surirella ovata	-	11	11	8	8	-
Synedra amphicephala	-	19	-	11	-	-
Synedra ulna	38	216	97	116	86	78

APPENDIX A-5-2 (Continued)

	Station	
	31A	32A
CYANOPHYTA		
Merismopedia tennuissima		65
Oscillatoria sp.	5	2
CHLOROPHYTA		
Cladophora sp.	1	1
Stigeoclonium sp.	19	-
Unidentified chlorophyte	22	24
CRYPTOPHYTA		
Rhodomonas minuta	3	8
CHRYSOPHYTA		
Achnanthes minutissima	35	51
Achnanthes lanceolata	11	8
Caloneis amphisbaena	3	8
Cocconeis pediculus	62	22
Cocconeis placentula	8	5
Cymatopleura solea	8	11
Cymbella affinis	30	49
Cymbella ventricosa	22	-
Cyclotella meneghiniana	8	13
Diatoma vulgare	278	613
Epithemia sorex	19	35
Fragilaria leptostauron	5	-
Fragilaria pinnata	-	62
Gomphonema acuminatum	3	19
Gomphonema constrictum	-	3
Gomphonema ventricosum	62	19
Hantzchia amphioxys	-	3
Meridion circulare	-	13
Navicula cryptocephala	32	19
Navicula salinarum	19	19
Navicula viridula	-	3

APPENDIX A-5-2 (Continued)

	Station	
	31A	32A
CHRYSOPHYTA (Continued		
Nitzschia dissipata	19	19
Nitzschia linearis	70	124
Suriella ovata	3	5
Synedra ulna	57	168

APPENDIX A-6-1

LIST OF ZOOPLANKTON SPECIES OBSERVED DURING RBOSP
AQUATIC BASELINE STUDIES, OCTOBER - NOVEMBER, 1974

PROTOZOA

Actinophrys sp.
Centropyxis aculeata
C. arcelloides
C. constricta
Ciliate (Unidentified)
Codonella cratera
Cyphoderia ampulla
Didinium sp.
Difflugia acuminata
Difflugia sp.
Dinamoeba mirabilis
Epistylis sp.
Euglypha laevis
Paramecium sp.
Strobilidium sp.
Vorticella sp.

ROTIFERA

Bdelloidea
Brachionus quadridentata
Cephalodella gibba
Cephalodella sp.
Colurella spp.
Filinia sp.
Keratella cochlearis
K. quadrata
Lecane sp.
Lepadella sp.
Monostyla bulla
Monostyla sp.
Notholca acuminata
N. Squamula
Rotifer (Contracted) spp.

ARTHROPODA

Hydracarina

Crustacea
Alona rectangular
Bryocamptus hiemalis

ARTHROPODA (cont.)

Crustecea (cont.)
Ceriodaphnia quadrangula
Cyclopoid copepodites
Cyclops vernalis
Chydorus sphaericus
Eucyclops agilis
Nauplii
Ostracoda
Pleuroxus aduncus
Simocephalus vetulus

2.4.3. Zooplankton

2.4.3.2. Methods

In the White River, zooplankton was collected with Wisconsin nets held at mid-depth at each station for a period of 15 seconds per replicate (this time has been determined by trial and error). The nets were equipped with calibrated General Oceanic flowmeters centered in the front of each net. The nets were #25 mesh (with a 64-micron open area).

At stations other than those in the White River, a portable pump was used to collect samples of 85 liters or more. These samples were pumped into a carboy of known volume and then filtered through the same Wisconsin nets; samples were concentrated to 100 to 200 ml and then preserved in 5% neutralized formalin. Exact time of collection, exact volume, and other pertinent information were recorded in field notes. Samples of live material were also collected for qualitative identification of certain microplankters, particularly ciliates, which do not preserve well.

In the laboratory two methods were used in the counting and identification of zooplankton. The sample was concentrated to 20 ml; 1 ml (aliquot) was subsampled and placed in the cell for enumeration. This was equivalent to examining 5 liters of the original sample. In samples which contained large

amounts of detritus, the sample was concentrated to only 60 ml with three 1-ml subsamples enumerated. Only Protozoa, Rotifera, and Crustacea nauplii were counted by this method. All other organisms were counted from the equivalent of, at most, 100 liters of original unconcentrated sample; the total sample was counted for those in which the original sample was 100 liters or less. Ten ml aliquots of the sample were then placed in a Bogorov counting chamber and scanned with a dissecting microscope at 12X. Identifications were made by removing the organism, dissecting when necessary, mounting on a slide and examining at high magnification (up to 1000X) with a compound microscope.

Taxonomic references used for identification of phytoplankton and zooplankton are presented at the end of this section.

Samples were stored and properly preserved for future analysis upon call. Each sample has been identified by the time of day and date of collection; collection station and preservative used.

2.4.3.3. Results

Zooplankton data collected during December 1974 - January 1975 and analyzed to date are presented in Appendices A-7-1 and A-7-2.

During the October - November 1974 sampling period the dominant zooplankton species in stations located in the headwater areas were the Protozoa: Centropyxis aculeata, C. arcelloides, C. constricta, and Vorticella sp.; Bdelloid rotifers; and Bryocamptus hiemalis and crustacean nauplii. At Tract stations the most abundant species were the Protozoa: Centropyxis aculeata, C. constricta; the Rotifera: Cephalodella gibba, Cephalodella sp., Notholca acuminata, and N. squamula; and ostracods and crustacean nauplii. In stations on Yellow Creek the most abundant organisms were: Centropyxis aculeata, Notholca acuminata, and crustacean nauplii. At White River stations Centropyxis aculeata, Vorticella sp., Lepadella sp., and Monostyla sp. were the most abundant species. During the October - November 1974 sampling a total of 41 zooplankton taxa were collected. The zooplankton data obtained during that period is presented in Appendices A-6-1 and A-6-2.

Partial analysis of zooplankton samples collected during December 1974 - January 1975 indicates the following. The most abundant species at headwater stations included species of Centropyxis, Bdelloid rotifers, and crustacean nauplii. At Tract stations, the most abundant species were species of Centropyxis, species of Notholca, and ostrocods. In stations on Yellow Creek, the most abundant zooplankton species are those belonging to the

genus Centropyxis and the species Monostyla sp. In the White River the most abundant species observed included species of Centropyxis, Vorticella sp., and Proales sp. The analyses completed to date have yielded a total of 39 zooplankton taxa from the December - January sampling period.

APPENDIX A-6-2

ZOOPLANKTON OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES
OCTOBER - NOVEMBER 1974
(Organisms/M^3)

APPENDIX A-6-2

	STATION / REPLICATE					
	1		2		3	
	A	B	A	B	A	B
Protozoa						
Actinophrys sp.				200		
Centropyxis aculeata	400	10400		1600		1800
C. arcelloides		800		200		200
C. constricta	2600	12800	1600	4800	800	2400
Cyphoderia ampulla	200			400	200	800
Didinium sp.		200				400
Difflugia acuminata		200				
Difflugia sp.	800		200			
Dinamoeba mirabilis				200		
Epistylis sp.				200		
Euglypha laevis				200		
Paramecium sp.	2000	200				
Vorticella sp.	43000	20800	800	400	6000	400
Rotifera						
Bdelloidea	1400	3200	15800		4600	
Colurella spp.		200				3800
Filinia sp.	200					
Lepadella sp.					3200	
Monostyla sp.					300	
Notholca squamula	2000	400				
Rotifer (Contracted) spp.		200		11200		2400
Arthropoda						
Crustacea						
Nauplii	2000	1200	8000	12200	400	1800
Bryocamptus hiemalis	1250	480	673	156	12	
Ostracoda	59	24		12	12	12

APPENDIX A-6-2 (Continued)

	STATION / REPLICATE					
	4		5		6	
	A	B	A	B	A	B
					Dry	
Protozoa						
Actinophrys sp.						
Centropyxis aculeata	400	400	800	1800		
C. arcelloides	1600					
C. constricta		3200	2200			
Ciliate (Unidentified)				400		
Cyphoderia ampulla			200			
Difflugia acuminata		200				
Difflugia sp.			400			
Vorticella sp.	1200			200		
Rotifera						
Bdelloidea	1800			400		
Cephalodella sp.		200		200		
Colurella spp.			200	400		
Lepadella sp.	200		1000	1000		
Monostyla sp.			1800	2000		
Notholca acuminata			2400	3800		
N. squamula			1600	2000		
Rotifer (Contracted) spp.		200		600		
Arthropoda						
Crustacea						
Nauplii	200		200			
Cyclopoid copepodites				12		
Bryocamptus hiemalis	24					
Cyclops vernalis				12		
Eucyclops agilis			12	12		
Alona rectangula			71	36		
Chydorus sphaericus			83	48		
Pleuroxus aduncus			24			
Ostracoda	59	168	24	12		

	STATION / REPLICATE					
	7		8		9	
	A	B	A	B	A	B
Protozoa						
Centropyxis aculeata	1800	3000		200		2000
C. constricta		3000		200	1400	6200
Cyphoderia ampulla	200	200			600	400
Difflugia acuminata						400
Difflugia sp.					600	
Vorticella sp.				200	1400	1200
Rotifera						
Bdelloidea					1400	200
Cephalodella gibba		200				
Cephalodella sp.					7200	5000
Colurella spp.		200				
Lecane sp.		200				
Lepadella sp.	200			200	1200	600
Notholca squamula	200				1200	600
Rotifer (contracted) spp.		800		200		600
Tardigrada			35		12	
Arthropoda						
Crustacea						
Nauplii		600	200	400	600	400
Cyclopoid copepodites		24		12	47	
Bryocamptus hiemalis		12	389	84	201	
Chydorus sphaericus			36	108		
Pleuroxus aduncus				12		12
Ostracoda	1140	768	212		378	12

STATION	10		11		12	
REPLICATE	A	B	A	B	A	B
	Dry		Dry		Dry	

	STATION / REPLICATE					
	13		14		15	
	A	B	A	B	A	B
Protozoa	Dry				Dry	
Centropyxis aculeata				200		
Ciliate (Unidentified)				1000		
Didinium sp.			200			
Difflugia sp.				200		
Vorticella sp.			5600	25000		
Rotifera						
Bdelloidea			1600	200		
Cephalodella sp.			5600			
Colurella spp.				1200		
Lecane sp.				200		
Lepadella sp.			2000	600		
Monostyla sp.			7800	9400		
Notholca acuminata			6200	9000		
N. squamula			1400	800		
Rotifer (Contracted) spp.				3200		
Arthropoda						
Crustacea						
Cyclopoid copepodites			366	12		
Eucyclops agilis			189	12		
Ceriodaphnia quadrangula			7080	24		
Chydorus sphaericus			12			
Simocephalus vetulus			189	12		
Ostracoda			24	84		

APPENDIX A-6-2 (Continued)

	STATION					
	16		17		18	
	A	B	A	B	A	B
	Dry		Dry		Dry	

APPENDIX A-6-2 (Continued)

	STATION REPLICATE					
	19		20		21	
	A	B	A	B	A	B
Protozoa						
Centropyxis aculeata		1000	200	800	400	1400
C. arcelloides						200
C. constricta		1800				1600
Ciliate (Unidentified)		600		400		400
Strobilidium sp.	400					
Vorticella sp.		600		600		800
Rotifera						
Bedlloidea	1000	600				
Cephalodella sp.	600		400	800	1400	400
Lepadella sp.	200	1800	400	600		200
Monostyla sp.	400	3400	200	400		1000
Notholca acuminata	5000	13400	5600	7400	3000	2800
N. squamula	400	400	200			
Rotifer (Contracted) spp.		1400		400		400
Arthropoda						
Arachnoidea						48
Acari						
Crustacea						
Nauplii	1600	200	200			200
Cyclopoid copepodites	2089	1332	12	24	24	12
Cyclops vernalis		192				
Cyclops sp.	24					
Eucyclops agilis		48	12	12		36
Alona rectangula	602	12	24		12	
Ceriodaphnia quadrangula		36				
Chydorus sphaericus	47			24		
Pleuroxus aduncus		1656				
Simocephalus vetulus		60	12		12	
Ostracoda	47	96				12

APPENDIX A-6-2 (Continued)

	STATION REPLICATE					
	22		23		24	
	A	B	A	B	A	B
Protozoa						
Centropyxis aculeata	3000	1200	4600	3800	8800	4800
C. constricta		200		400		4000
Ciliate (Unidentified)		200		200	200	
Cyphoderia ampulla				200		
Difflugia sp.	200		200	600	400	
Epistylis sp.				2400		600
Vorticella sp.			5400	3400	2000	1200
Rotifera						
Bdelloidea	400	200	1200	200	800	
Brachionus quadridentatus		200				
Cephalodella gibba				1600		200
Cephalodella sp.	400	800	1200		600	
Colurella spp.				400		
Lepadella sp.	400	200	1800		800	200
Monostyla sp.	200	1000	1400	200	600	600
Notholca acuminata	800	4200				200
N. squamula			200			200
Rotifer (Contracted) spp.		800		400		600
Arthropoda						
Arachnoidea		12				
Acari						
Crustacea						
Nauplii	200					
Cyclopoid copepodites	35	12	10	10	10	10
Bryocamptus hiemalis					10	
Eucyclops agilis	12		10			
Chydorus sphaericus		12				
Ostracoda		12				

APPENDIX A-6-2 (Continued)

	STATION REPLICATE					
	25		26		27	
	A	B	A	B	A	B
Protozoa						
Centropyxis aculeata	2400	11800	2400	9400	1200	12200
C. constricta		3600		3000		800
Cyphoderia ampulla	200					
Difflugia sp.	200		400			200
Epistylis sp.		2400				5600
Vorticella sp.	4400	1800	400	1600	5200	3600
Rotifera						
Bdelloidea	400				200	200
Cephalodella gibba		400				1000
Cephalodella sp.	1200		800		1200	
Colurella spp.		200		200		
Lecane sp.				200		
Lepadella sp.	800	1200	600	1400	600	
Monostyla sp.	1000	1000	800	600		600
Rotifer (Contracted)spp.						
Arthropoda						
Crustacea						
Nauplii			200			200

APPENDIX A-6-2 (Continued)

	STATION / REPLICATE					
	28		29		30	
	A	B	A	B	A	B
Protozoa						
Centropyxis aculeata	6800	8200	6200	1000	11400	8000
C. constricta		600		400		600
Ciliate (Unidentified)		200				400
Difflugia sp.			200			
Vorticella sp.	2800	400	1000	400	1600	1200
Rotifera						
Bdelloidea			200			200
Cephalodella gibba		1000		200		400
Cephalodella sp.	400				400	
Colurella spp.						200
Keratella quadrata	200					
Lecane sp.						200
Lepadella sp.	1400		200		800	1200
Monostyla sp.	600	400	200	600	400	600
Notholca acuminata	200		200	200		
N. squamula		200				
Rotifer (Contracted) spp.				200		200
Arthropoda						
Crustacea						
Nauplii		200				200
Ostracoda	10				10	

APPENDIX A-6-2 (Continued)

	STATION REPLICATE					
	31		32		33	
	A	B	A	B	A	B
Protozoa						
Centropyxis aculeata	8800	3800	8600	6600	14400	8000
C. constricta				400		600
Ciliate (Unidentified)						200
Codonella cratera						200
Cyphoderia ampulla			200			200
Difflugia sp.	200	200		200	600	800
Epistylis sp.				600		2000
Euglypha laevis						200
Vorticella sp.	2400	200	3000	1800	3600	400
Rotifera						
Bdelloidea			200			
Cephalodella gibba		400		400		600
Cephalodella sp.	600		600		1200	
Colurella spp.		400		1200		600
Keratella cochlearis	200				200	
Lepadella sp.	400	600	400	800	1200	600
Monostyla bulla				200		
Monostyla sp.	200	1400	1000	400	1600	1600
Notholca acuminata			200	400		
N. squamula				200	200	
Rotifer (Contracted)spp.		200		200		400
Arthropoda						
Crustacea						
Nauplii		200				
Chydorus sphaericus			10			
Ostracoda			10			

APPENDIX A-6-2 (Continued)

	STATION			
	REPLICATE			
	34		35	
	A	B	A	B
Protozoa				
Centrophxis aculeata	14800	12600	9400	8200
C. constricta		1400		600
Ciliate (Unidentified)		200	200	
Cyphoderia ampulla				200
Difflugia sp.	600	400	200	
Epistylis sp.		600		
Vorticella sp.	3000	2200	1200	1200
Rotifera				
Bdelloidea	400		400	
Cephalodella gibba		200		200
Cephalodella sp.	2000		800	
Colurella spp.				400
Lepadella sp.	1600	200	2000	800
Monostyla bulla				400
Monostyla sp.	800	1400	2000	400
Rotifer (Contracted) spp.		200		200

APPENDIX A-7-1

LIST OF ZOOPLANKTON SPECIES OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, DECEMBER 1974 - JANUARY 1975

PROTOZOA

Centropyxis aculeata
Centropyxis constricta
Chilodonella cucullula
Ciliate (Unidentified)
Cyphoderia ampulla
Didinium nasutum
Difflugia acuminata
Epistylis sp.
Paramecium sp.
Platyophrya sp.
Strombidium sp.
Vorticella sp.

ROTIFERA

Bdelloidea
Cephalodella gibba
Cephalodella forficula
Colurella spp.
Lecane sp.
Lepadella sp.
Monostyla bulla
M. closterocerca
M. lunaris
M. sp.
Notholca acuminata
N. squamula
Proales sp.
Rotifer (Contracted) spp.

TARDIGRADA

ARTHROPODA

Crustacea
Alona guttata
Bryocamptus hiemalis
Ceriodaphnia quadrangula
Chydorus sphaericus
Cyclopoid copepodites

ARTHROPODA

Crustacea
Cyclopes vernalis
Eucyclops agilis
Nauplii
Ostracoda
Pleuroxus aduncus
Simocephalus vetulus

APPENDIX A-7-2

ZOOPLANKTON OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES
DECEMBER 1974 - JANUARY 1975
(Organisms/M^3)

APPENDIX A-7-2

	STATION				
	1	2	3	4	5
	A	A	A	A	A
Protozoa	Inac.	Inac			
Centropyxis aculeata			1200	800	1600
C. constricta			16800	1400	600
Chilodonella cucullula			400		
Strombidium sp.					1200
Vorticella sp.			200		
Rotifera					
Bdelloidea				400	44400
Cephalodella gibba					200
Colurella spp.		400			200
Lepadella sp.					800
Monostyla sp.					600
Notholca acuminata		200			600
Tardigrada		10	40		
Arthropoda					
Crustacea					
Nauplii		600	800		
Bryocamptus hiemalis		110	40		
Ostracoda			280		10

Inac. - Inaccessible

APPENDIX A-7-2 (Continued)

	STATION				
	6 A Dry	7 A Dry	8 A	9 A	10 A Frozen
Protozoa					
Centropyxis aculeata				400	
Cyphoderia ampulla				200	
Vorticella sp.			800		
Rotifera					
Cephalodella forficula				400	
Colurella spp.			600	600	
Notholca acuminata			2000		
N. squamula				2200	
Tardigrada			30	10	
Arthropoda					
Crustacea					
Nauplii			2200	200	
Bryocamptus hiemalis			330		
Eucyclops agilis			30		
Ostracoda			150	70	

APPENDIX A-7-2 (Continued)

	STATION				
	11	12	13	14	15
	A	A	A	A	A
	Dry	Frozen			Dry
Protozoa					
Centropyxis aculeata			200	200	
C. constricta			200	200	
Chilodonella cucullula			400		
Ciliate (Unidentified)			200		
Epistylis sp.				200	
Rotifera					
Colurella spp.				400	
Monostyla sp.				1600	
Notholca acuminata				600	
N. squamula			200	400	
Proales sp.			200		
Tardigrada			10		
Arthropoda					
Crustacea					
Cyclopoid copepodites			20		31
Eucyclops agilis			20		
Ceriodaphnia quadrangula			102		
Chydorus sphaericus			61		
Simocephalus vetulus			41		
Ostracoda			398		10

APPENDIX A-7-2 (Continued)

	STATION				
	16 A Dry	17 A Dry	18 A Dry	19 A	20 A
Protozoa					
Centropyxis aculeata					1600
C. constricta					200
Difflugia acuminata				200	
Rotifera					
Cephalodella gibba					400
Lepadella sp.					600
Monostyla sp.					1600
Notholca acuminata				400	600
N. squamula					200
Arthopoda					
Crustacea					
Nauplii					200
Cyclopoid copepodites				10	10
Eucyclops agilis				10	
Ostracoda					10

APPENDIX A-7-2 (Continued)

Protozoa	STATION 21 A	22 A	23 A	24 A	25 A
Centropyxis aculeata	2200	1200	8800	4200	6400
C. constricta	1000		400	600	2400
Chilodonella cucullula	200				
Ciliate (Unidentified)		200			
Cyphoderia ampulla			200		
Difflugia acuminata			400	200	600
Epistylis sp.					2400
Paramecium sp.	200				
Platyophya sp.				200	
Vorticella sp.			3200	4800	4600
Rotifera					
Bdelloidea	200				
Cephalodella gibba		200	200	1000	1200
Cephalodella forficula				400	
Lepadella sp.	200			200	800
Monostyla sp.	1600	200		400	800
Notholca acuminata	400	400			200
N. squamula					200
Proales sp.		200	8200	6200	
Rotifer (Contracted) spp.					8200
Arthropoda					
Crustacea					
Nauplii				200	200
Cyclopoid copepodites	20				

APPENDIX A-7-2 (Continued)

	STATION				
	21	22	23	24	25
	A	A	A	A	A
Bryocamptus hiemalis	10				
Cyclops vernalis				10	
Eucyclops agilis			10	10	
Chydorus sphaericus				10	10
Pleuroxus aduncus		10			

APPENDIX A-7-2 (Continued)

	STATION				
	26	27	28	29	30
	A	A	A	A	A
Protozoa		Frozen	Frozen	Frozen	
Centropyxis aculeata	2400				2000
C. constricta	1200				
Difflugia acuminata	600				
Epistylis sp.					4000
Vorticella sp.	8200				18000
Rotifera					
Cephalodella gibba	600				1000
Colurella spp.	400				2000
Lecane sp.					1000
Monostyla bulla	200				
Monostyla sp.	1400				1000
Notholca squamula	400				1000
Proales sp.	7000				
Arthopoda					
Crustacea					
Chydorus sphaericus	10				

APPENDIX A-7-2 (Continued)

	STATION				
	31	32	33	34	35
	A	A	A	A	A
Protozoa					
Centropyxis aculeata	5000	4000	1800	4000	2600
C. constricta	2000	200	400		200
Ciliate (Unidentified)		200	200		
Didinium nasutum			200		
Difflugia acuminata					200
Epistylis sp.		1400	600		
Vorticella sp.	24000	4000	1200	1800	400
Rotifera					
Cephalodella gibba	3000		200		600
Colurella spp.		600			600
Lepadella sp.			200	400	
Monostyla closterocerca		400			
Monostyla lunaris		400			200
N. squamula			200	200	400
Proales sp.	5000	4800	4400	3400	3800
Tardigrada				10	
Arthropoda					
Crustacea					
Cyclopoid copepodites		11		10	
Alona guttata			10		
Chydorus sphaericus		11			
Ostracoda			122	10	

2.4.4. Periphyton

2.4.4.2. Methods

Samples at all stations were obtained from natural substrates. At each site, a total of six replicate samples were collected. Three were used to estimate abundance and three to determine biomass.

Samples of periphyton were collected from areas of equivalent flow, where possible. Rocks that were relatively flat, facing the surface of the water and positioned at mid-stream in riffles were chosen, as randomly as possible, for sampling. The rocks were carefully removed from the streams and all periphyton within a 50-square centimeter area was removed with a toothbrush or knife and water (Northern States Power Co. 1974). The resultant suspension of material was preserved in 5% formalin.

In the laboratory, each preserved periphyton sample was diluted to a constant volume of 130 ml and an aliquot of 10 ml was removed, centrifuged, and washed with distilled water. The sample was then stained and dehydrated in the centrifuge, using successive spinnings and decantings. The same series of stains and alcohol was used for the periphyton as was described for the phytoplankton. A number of drops of the final xylene-periphyton suspension were placed on a microscope slide with Hyrax, heated gently, and covered with an ultra-thin coverglass. The final mounts were retailed in the permanent voucher collection

Periphyton was counted at 1000X from one randomly chosen transect on each slide. All organisms appearing in these fields were identified and counted. The whole slide was then surveyed at 100X to identify and enumerate larger less common species. Counts were expressed as cells per unit area; these data were then used to compute relative abundance and species diversity. Taxonomic references were the same as those used for phytoplankers.

Biomass determinations were made on another set of samples removed with the toothbrush. These samples were dried to a constant weight at 105°C and weighed, then ashed at 550°C (Vollenweider 1969). The ash-free dry weights were calculated as an estimate of the organic weight or biomass of the periphyton.

All samples were stored and properly preserved for future analysis, upon call. Each sample was identified by date, time of day and station, with indication of preservative used.

2.4.4.3. Results

A total of 115 periphyton species were observed in the samples collected during October - November 1974. Periphyton data for October - November are presented in Appendices A-8-1 and A-8-2

In the October - November 1974 samples periphyton abundance was generally less at headwater stations than elsewhere. Diatoms were the dominant periphytic group at these stations with Achnanthes minutissima, Nitzschia baccata, N. frustulum, Synedra amphicephala, Cocconeis placentula, Cyclotella meneghinina, Fragilaria vaucheriae, Gomphonema intricatum, Navicula cryptocephala, and Pleurosigma delicatulum as the most abundant species. In addition, the blue-green algae Lyngbya sp. and Plectonema sp. were abundant at Stations 1 and 2. At Tract stations diatoms were dominant; the most abundant species included: Achnanthes minutissima, A. lanceolata, Navicula cryptocephala, Gomphonema intricatum, Nitzschia linearis, and N. denticula. The blue-green species Lyngbya sp. and Plectonema sp. were also abundant at Station 13. Diatoms comprised the dominant group at Yellow Creek stations with Achnanthes minutissima, Cymbella affinis, Nitzschia frustulum, and Rhopalodia gibba as the most abundant species. The blue-green alga Rivularia sp. was also quite abundant at Station 20. In the White River the diatoms were the most abundant periphytic group and the most abundant species included: Epithemia sorex,

Navicula cryptocephala, Navicula salinarum, Nitzschia frustulum, Synedra ulna, Nitzschia dissipata, Gomphonema olivaceum, and Cymbella affinis. In addition, the blue-green species Rivularia sp., Lyngbya sp., and Oscillatoria sp. were abundant at many of the White River Stations.

Results of December 1974 - January 1975 periphyton samples analyzed to date are listed in Appendices A-9-1 and A-9-2. For the two replicates completed, 69 taxa have been identified.

APPENDIX A-8-1

LIST OF PERIPHYTON SPECIES OBSERVED
DURING RBOSP AQUATIC BASELINE STUDIES,
OCTOBER-NOVEMBER 1974

APPENDIX A-8-1

CYANOPHYTA
- Anabaena sp.
- Calothrix sp.
- Lyngbya sp.
- Oscillatoria sp.
- Plectonema sp.
- Rivularia sp.
- Schizothrix sp.

CHLOROPHYTA
- Claudophora sp.
- Dictyosphaerium germinata
- Ulothrix sp.
- Zygnema sp.

CRYPTOPHYTA
- Cryptomonas erosa

CHRYSOPHYTA
- Achnanthes hauckiana
- A. lanceolata
- A. minutissima
- Amphipleura pellucida
- Amphiprora ornata
- Amphora sp.
- A. ornata
- A. ovalis
- A. ovalis var. pediculus
- Caloneis amphisbaena
- C. bacillum
- C. ventricosa
- Cocconeis pediculus
- C. placentula
- Cyclotella meneghiniana
- Cymatopleura solea
- Cymbella affinis
- C. cistula
- C. delicatula
- C. microcephala
- C. prostrata
- C. pusilla
- C. sinuata
- C. turgida
- C. ventricosa

CHRYSOPHYTA (cont.)
Diatoma tenue var. elongatum
D. vulgare
Didymosphehia geminata
Epithemia sorex
E. zebra
Fragilaria capucina
F. construens
F. crotonensis
F. leptostauron
F. pinnata
F. vaucheriae
Gomphonema angustatum
G. gracile
G. intricatum
G. lanceolatum
G. longiceps
G. olivaceum
G. parvulum
G. ventricosum
Gyrosigma acuminatum
Hantzschia amphioxys
Mastogloia elliptica
Melosira varians
Meridion circulare
Navicula arvensis
N. capitata
N. cryptocephala
N. cuspidata
N. minima
N. mutica
N. pelliculosa
N. pupula
N. pygmaea
N. rhyncocephala
N. salinarum
N. salinarum var. intermedia
N. seminulum
N. tripunctata
N. varidula
N. sp. 1
N. sp. 2
Nitzschia acicularis
N. amphibia

CHRYSOPHYTA (cont.)
N. apiculata
N. bacata
N. chasei
N. denticula
N. dissipata
N. frustulum
N. gracilis
N. holsatica
N. hungarica
N. linearis
N. longissima var. closterium
N. micans
N. palea
N. sp. 1
N. sigmoidea
N. tryblionella
N. tripunctata
N. vermicularis
Pinnularia borealis
P. sp. 1
P. brebissonii
Pleurosigma delicatulum
P. salinarum
Rhiocosphenia curvata
Rhopalodia gibba
R. gibberula
Surirella angustata
S. ovalis
S. ovata
S. sp. 1
Synedra amphicephala
S. pulchella
S. pulchella var. lanceolata
S. rumpens
S. ulna

PHYRROPHYTA
Gymnodinium sp.

APPENDIX A-8-2

PERIPHYTON OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, OCTOBER - NOVEMBER 1974

(Data are expressed as cells/mm^2)

APPENDIX A-8-2

	Station Replicate								
	1			2			3		
	A	B	C	A	B	C	A	B	C
CYANOPHYTA									
Anabagna sp.	-		-	-	-	-	-	-	-
Lyngbya sp.	-	1,472	-	-	-	14	-	-	14
Plectongma sp.	-		-	-	5,414	2,511	-	-	-
Rivularia sp.	94	-	-	-	-	-	41	-	-
CHLOROPHYTA									
Ulothrix sp.	-	-	-	-	-	27	-	-	-
Zygnema sp.	-	1	-	-	7	-	-	-	-
CRYPTOPHYTA									
Cryptomonas erosa	-	-	-	14	-	-	-	-	-
CHRYSOPHYTA									
Achnanthes lanceolata	-	-	-	-	14	-	108	-	14
Achnanthes minutissima	371	351	-	432	608	891	918	-	176
Amphora sp.	-	-	-	-	-	-	14	-	-
Amphora ovalis	-	-	-	-	-	7	-	-	-
Amphora ovalis var. pediculus	7	-	-	-	-	-	-	-	-
Cocconeis pediculus	7	-	-	-	-	-	-	-	14
Cymbella affinis	7	-	56	176	-	-	14	-	14
Diatoma vulgare	14	-	-	-	-	-	-	-	-
Epithema sorex	7	-	-	-	-	-	14	-	40
Gomphonema intricatum	7	-	-	-	-	-	27	-	-
Gomphonema lanceolata	-	-	-	-	-	-	-	-	14
Gomphonema olivaceum	-	-	-	-	7	-	-	-	14
Gomphonema ventricosum	7	-	-	-	7	-	-	-	-
Gyrosigma accuminatum	7	7	-	-	-	-	-	-	-
Navicula sp. 1	-	-	-	-	-	-	68	-	14
Navicula sp. 2	-	-	-	-	7	14	94	-	-
Navicula arvensis	-	-	-	-	27	-	202	-	14
Navicula cryptocephala	14	-	-	-	94	27	108	54	27
Navicula minima	-	-	-	-	-	-	-	54	-

APPENDIX A-8-2 (Continued

	Station Replicate								
	1			2			3		
	A	B	C	A	B	C	A	B	C
CHRYSOPHYTA (Continued)									
Navicula pelliculosa	-	-	-	-	7	-	162	-	14
Navicula rhyncocephala	-	-	-	-	-	-	-	28	-
Navicula salinarum	-	-	-	-	-	7	-	-	-
Nitzschia apiculata	-	-	-	-	14	-	-	-	-
Nitzschia baccata	-	-	-	-	472	270	-	-	-
Nitzschia denticula	-	-	-	-	-	-	40	-	-
Nitzschia disipata	-	-	-	28	-	-	-	-	54
Nitzschia frustulum	7	-	-	82	40	40	202	136	40
Nitzschia linearis	-	-	-	38	81	40	1	2	1
Nitzschia palea	-	-	-	298	-	-	14	28	-
Surirella ovata	-	-	-	-	7	-	-	-	-
Synedra amphicephala	-	-	-	1,242	742	621	-	-	-
Synedra ulna	-	-	4	-	2	2	-	1	-

APPENDIX A-8-2 (Continued)

	Station								
	4			5			6		
	A	B	C	A	B	C	A	B	C
CYANOPHYTA									
Rivularia sp.	-	-	-	-	-	68	-	-	-
CHLOROPHYTA									
CHRYPTOPHYTA									
CHRYSOPHYTA									
Achnanthes lanceolata	648	716	135	-	-	68	-	-	-
Achnanthes minutissima	2,160	2,511	5,886	8,100	10,530	7,965	-	-	-
Amphiphora ornata	-	-	-	136	135	68	-	-	-
Cocconeis pediculus	-	-	-	-	-	472	-	-	-
Cocconeis placentula	-	-	-	-	945	270	-	-	-
Cyclotella meneghiniana	-	14	-	136	202	68	-	-	-
Cymbella affinis	82	54	14	270	68	68	-	-	-
Diatoma tenue var. elongatum	-	-	-	-	135	-	-	-	-
Diatoma vulgare	-	-	-	-	135	135	-	-	-
Epithemia sorex	-	-	-	410	-	-	-	-	-
Fragilaria crotonensis	-	-	-	-	405	-	-	-	-
Fragilaria vaucheriae	-	-	-	2,296	-	-	-	-	-
Gomphonema intricatum	-	27	135	-	270	338	-	-	-
Gomphonema longiceps	-	-	-	270	-	-	-	-	-
Gomphonema olivaceum	-	68	-	-	-	135	-	-	-
Gomphonema parvulum	54	-	-	-	-	-	-	-	-
Meridion circulare	-	-	14	-	-	-	-	-	-
Navicula sp. 1	-	297	54	-	-	270	-	-	-
Navicula arvensis	-	270	14	-	-	-	-	-	-
Navicula cryptocephala	-	702	958	406	4,050	1,080	-	Dry	-
Navicula pelliculosa	-	837	-	-	-	-	-	-	-
Navicula rhyncocephala	270	-	-	-	-	-	-	-	-
Navicula salinarium	-	-	-	-	68	-	-	-	-
Navicula tripunctata	-	-	-	-	-	-	-	-	-
Navicula viridula	-	-	-	-	270	270	-	-	-

APPENDIX A-8-2 (Continued)

	Station								
	4			5			6		
	A	B	C	A	B	C	A	B	C
CHRYSOPHYTA (Continued)									
Nitzschia acicularis	28	-	-	136	68	-	-	-	-
Nitzschia amphibia	54	-	-	-	-	-	-	-	-
Nitzschia apiculata	-	-	-	-	-	68	-	-	-
Nitzschia denticula	-	14	270	-	-	-	-	-	-
Nitzschia dissipata	-	-	14	136	-	-	-	-	-
Nitzschia frustulum	-	-	14	136	1,215	945	-	-	-
Nitzschia gracilis	-	-	-	136	-	-	-	-	-
Nitzschia linearis	54	3	81	-	-	-	-	-	-
Nitzschia palea	54	14	14	136	68	68	-	-	-
Nitzschia sigmoidea	2	-	-	-	-	1	-	-	-
Nitzschia tripunctata	-	-	-	-	-	-	-	-	-
Pinnularia brebissonii	-	-	-	-	68	1	-	-	-
Pleurosigma delicatulum	-	-	-	406	405	742	-	-	-
Rhopalodia gibba	-	-	-	-	135	68	-	-	-
Rhopalodia gibberula	-	-	-	2	-	135	-	-	-
Syrinella ovata	-	54	27	-	202	135	-	-	-
Synedra sp. 1	28	-	-	-	-	-	-	-	-
Synedra amphicephala	-	-	-	-	4,860	6,075	-	-	-
Synedra ulna	10	1	6	270	68	202	-	-	-

APPENDIX A-8-2 (Continued)

	Station								
	7			8			9		
	A	B	C	A	B	C	A	B	C
CYANOPHYTA									
Lyngbya sp.	-	-	-	-	-	-	1,126	-	297
CHLOROPHYTA									
Ulothrix sp.	-	252	-	-	-	-	-	-	-
CRYPTOPHYTA									
CHRYSOPHYTA									
Achnanthes lanceolata	406	14	-	-	82	20	14	-	-
Achnanthes minutissima	5,400	3,373	770	20	108	40	844	1,890	729
Cocconeis placentula	-	-	-	-	-	-	-	-	34
Cymbella affinis	-	135	-	-	-	7	7	-	-
Cymbella microcephala	-	14	-	-	-	-	-	-	-
Epithemia sorex	-	-	27	7	-	7	-	108	-
Fragilaria crotonensis	-	-	-	-	-	-	-	28	-
Fragilaria vaucheriae	136	-	-	-	-	-	-	-	-
Gomphonema olivaceum	-	-	-	-	-	-	7	-	7
Gyrosigma acuminatum	-	-	-	-	-	-	-	2	-
Meridion circulare	-	-	-	-	-	-	-	28	-
Navicula sp. 1	-	-	-	-	-	-	7	-	-
Navicula arvensis	-	-	-	-	-	-	-	-	-
Navicula cryptocephala	136	14	-	-	28	-	20	82	27
Navicula pelliculosa	-	-	-	7	-	-	-	-	-
Navicula rhynococephala	-	-	-	-	-	-	-	28	-
Navicula seminulum	-	-	-	-	8	-	-	-	-
Navicula tripunctata	-	-	-	-	-	-	7	-	-
Nitzschia denticula	-	-	-	-	-	-	14	-	14
Nitzschia dissipata	-	108	-	-	-	-	-	-	-
Nitzschia frustulum	270	27	14	-	-	-	-	28	7
Nitzschia linearis	-	-	-	-	-	-	-	4	-
Nitzschia palea	-	14	14	-	-	7	7	28	14
Pleurosigma delicatuum	-	-	-	-	-	-	-	-	1
Surirella ovata	-	27	-	-	-	-	-	-	-
Synedra amphicephala	-	-	-	-	28	-	27	216	61
Synedra ulna	4	-	1	-	2	-	7	-	1

APPENDIX A-8-2 (Continued)

Station								
10			11			12		
A	B	C	A	B	C	A	B	C
Dry			Dry			Dry		

APPENDIX A-8-2 (Continued)

	Station								
	13			14			15		
	A	B	C	A	B	C	A	B	C
CYANOPHYTA									
Anabaena sp.	-	-	162	-	-	-			
Lyngbya sp.	5,738	-	-	-	-	-		Dry	
Plectonema sp.	-	3,105	-	-	-	-			
CHLOROPHYTA									
Ulothrix sp.	11	13	-	-	1	-			
CHRYSOPHYTA									
Achnanthes lanceolata	810	270	2,970	1,810	14	-			
Achnanthes minutissima	8,507	13,094	-	-	1,377	662			
Cymbella affinis	405	-	-	-	14	27			
Cymbella distula	-	-	270	-	-	-			
Cymbella microcephala	-	-	-	-	14	-			
Epitehmia sorex	-	-	-	-	14	-			
Fragilaria capucina	-	-	136	-	-	-			
Fragilaria sp.	-	135	-	-	-	-			
Fragilaria vaucheriae	202	135	136	28	-	-			
Gomphonema angustatum	-	-	1,216	-	-	-			
Gomphonema intricatum	608	1,958	-	-	-	-			
Gomphonema olivaceum	338	540	-	-	-	-			
Gomphonema ventricosa	-	-	-	-	14	-			
Gyrosigma accuminata	-	68	136	-	-	-			
Meridion circulare	472	270	956	-	-	-			
Navicula arvensis	675	472	540	-	-	-			
Navicula cryptocephala	8,032	4,118	31,186	-	28	14			
Navicula salinaruiti	68	-	-	-	-	-			
Navicula sp. 2	-	-	-	-	14	-			
Navicula tripunctata	-		136	-	-	-			

APPENDIX A-8-2 (Continued)

	Station								
	13			14			15		
	A	B	C	A	B	C	A	B	C
CHRYSOPHYTA (Continued)									
Nitzschia acicularis	202	135	136	28	-	-			
Nitzschia apiculata	-	68	-	-	-	-		Dry	
Nitzschia denticula	-	-	-	270	216	122			
Nitzschia dissipata	-	68	-	-	-	-			
Nitzschia frustulum	472	3,375	136	136	54	14			
Nitzschia linearis	202	405	676	-	-	-			
Nitzschia palea	270	68	1,080	-	54	-			
Nitzschia palea sp. 1	-	270	-	-	-	-			
Rhopalodia gibba	1	-	-	-	-	-			
Surirella ovata	68	135	136	-	-	-			

APPENDIX A-8-2 (Continued)

Station								
16			17			18		
A	B	C	A	B	C	A	B	C
Dry			Dry			Dry		

APPENDIX A-8-2 (Continued)

	Station								
	19			20			21		
	A	B	C	A	B	C	A	B	C
CYANOPHYTA									
Anabaena sp.	162	27	-	-	-	-	-	-	-
Lyngbya sp.	-	-	-	-	405	-	-	-	-
Oscillatoria sp.	-	-	-	-	-	-	-	68	-
Rivularia sp.	-	81	-	-	10,665	82	-	3,240	-
Schizothrix calcicola	-	108	-	-	-	-	-	-	-
CHLOROPHYTA									
Ulothrix sp.	-	-	81	-	-	-	-	-	-
CRYPTOPHYTA									
CHRYSOPHYTA									
Achnanthes hauckiana	-	14	-	-	-	-	-	-	-
Achnanthes lanceolata	28	-	-	-	-	-	-	-	-
Achnanthes minutissima	216	-	14	11,476	12,892	21,938	13,096	14,242	8,640
Amphiprora ornata	1	-	-	-	-	-	-	-	-
Cocconeis placentula	-	-	27	-	-	-	-	-	-
Cyclotella meneghiniana	-	14	27	540	540	4,050	406	405	608
Cymbella affinis	-	-	135	17,010	13,905	16,065	11,476	23,828	18,900
Cymbella delicatula	-	-	-	-	68	-	-	-	135
Cymbella pusilla	-	-	-	136	-	-	676	-	-
Cymbella ventricosa	-	-	-	-	-	135	-	-	-
Epithemia sorex	-	82	-	136	-	-	-	-	-
Epithemia zebra	-	14	14	-	-	-	-	-	-
Fragilaria vaucheriae	-	86	108	540	-	-	-	-	-
Gomphonema gracile	-	-	-	-	-	-	136	-	-
Gomphonema intricatum	-	-	-	-	-	-	-	68	-
Gomphonema olivaceum	-	-	14	-	-	270	-	-	-
Gomphonema parvulum	-	-	-	-	-	-	136	-	-
Gomphonema ventricosa	-	-	14	-	-	-	-	-	-
Gyrosigma accuminata	-	14	-	-	1	-	-	-	-

APPENDIX A-8-2 (Continued)

	19			20			21		
	A	B	C	A	B	C	A	B	C
CHRYSOPHYTA (Continued)									
Navicula sp.	-	-	54	-	-	-	-	-	-
Navicula capitata	54	-	-	-	-	-	-	68	-
Navicula cryptocephala	336	54	176	-	270	1,012	136	-	135
Navicula minima	-	14	14	-	-	-	-	-	-
Navicula mutica	-	-	-	-	-	68	-	-	-
Navicula tripunctata	54	-	-	-	-	-	-	-	-
Navicula viridula	-	81	27	-	-	-	-	-	68
Nitzschia amphibia	28	-	-	-	-	-	-	-	-
Nitzschia dissipata	-	-	-	-	-	68	-	-	-
Nitzschia frustulum	622	162	256	136	135	5,472	270	-	135
Nitzschia linearis	2	-	-	-	-	-	-	-	-
Nitzschia palea	216	40	-	270	-	-	406	-	202
Pinnularia brebissoni	-	-	-	-	-	-	-	-	-
Pleurosigma delicatulum	3	-	40	-	-	68	-	-	-
Rhiocosphenia curvata	-	-	27	-	-	-	-	-	-
Rhopalodia gibba	136	-	-	-	-	-	-	-	-
Rhopalodia gibberula	1,350	94	554	-	-	-	-	-	-
Surirella ovalis	-	-	-	-	-	68	1	-	-
Synedra amphicephala	78	40	68	-	68	-	-	68	135
Synedra pulchella	48	-	40	-	-	202	54	-	-
Synedra pulchella var. canceolata	-	-	-	136	7	540	-	68	270
Synedra ulna	28	-	-	-	-	-	136	-	-

APPENDIX A-8-2 (Continued)

	Station								
	22			23			24		
	A	B	C	A	B	C	A	B	C
CHRYSOPHYTA (Continued)									
Gomphonema olivaceum	-	-	-	810	338	405	1,486	405	202
Gomphonema parvulum	-	-	-	-	-	68	406	-	-
Gomphonema ventricosa	-	-	-	406	338	68	136	-	-
Gyrosigma accuminatum	-	-	-	4	3	270	-	68	1
Navicula capitata	-	-	-	-	-	-	136	-	-
Navicula cryptocephala	322	-	-	1,632	3,375	1,350	810	1,418	675
Navicula rhyncocephala	-	-	-	-	-	-	136	-	-
Navicula salinarum	-	-	-	-	2,025	1,958	-	2,430	1,080
Navicula salinarum var. intermedia	-	-	-	2,036	-	-	1,216	-	-
Navicula tripunctata	-	-	-	-	135	405	946	675	202
Navicula viridula	-	-	-	-	68	68	-	-	-
Nitzschia acicularis	-	-	-	136	540	540	1,350	472	135
Nitzschia dissipata	-	-	-	676	-	-	-	-	-
Nitzschia frustulum	108	-	27	2,026	862	878	406	675	1,148
Nitzschia micans	-	-	-	-	-	-	-	68	-
Nitzschia palea	162	-	-	-	-	-	-	-	338
Nitzschia sigmolusa	-	-	-	4	2	2	2	4	1
Nitzschia vermicularis	-	-	-	-	-	-	-	68	-
Pleurosigma delicatulum	-	-	-	-	-	2	-	1	-
Rhopalodia gibba	-	-	-	-	1	2	-	68	1
Surirella ovata	-	-	-	-	68	-	-	68	-
Synedra amphicephala	-	-	-	-	68	-	-	-	-
Synedra ulna	162	-	-	3,916	945	68	8	7	68

APPENDIX A-8-2 (Continued)

	Station								
	22			23			24		
	A	B	C	A	B	C	A	B	C
CYANOPHYTA									
Lyngbya sp.	-	-	-	-	68	675	-	-	-
Rivularia sp.	-	-	54	-	675	-	15,660	1,350	-
CHLOROPHYTA									
CRYPTOPHYTA									
CHRYSOPHYTA									
Achnanthes lanceolata	-	-	-	-	-	-	-	406	-
Achnanthes minutissima	9,828	3,807	5,130	136	2,022	-	540	68	202
Amphiphora ornata	54	-	-	-	-	-	-	-	-
Amphora ovalis	-	-	-	136	1	4	-	-	-
Amphora perpucilla	-	-	-	-	-	-	-	-	135
Caloneis amphisbagna	-	-	-	-	-	-	-	-	-
Cocconeis pediculus	-	-	-	406	202	1,350	-	270	810
Cocconeis placentula	-	-	-	-	202	-	-	-	-
Cyclotella meneghiniana	-	-	108	540	68	68	406	-	-
Cymatopleura solea	-	-	-	-	2	2	-	1	-
Cymbella affinis	18,198	2,241	5,292	1,350	540	405	-	68	810
Cymbella sinuata	-	-	-	-	-	136	-	-	68
Cymbella pucilla	216	-	-	-	-	136	-	-	-
Diatoma vulgare	-	-	-	810	862	270	-	68	68
Didymosthenia geminata	-	-	-	-	1	-	-	-	-
Epithemia sorex	-	-	-	4,050	10,935	17,482	2,618	11,408	14,310
Fragilaria vaucheriae	162	-	-	270	135	68	406	68	135
Gomphonema gracile	-	-	-	-	-	-	136	-	-
Gomphonema intricatum	-	-	27	-	68	-	-	-	-

APPENDIX A-8-2 (Continued)

	Station								
	25			26			27		
	A	B	C	A	B	C	A	B	C
CHRYSOPHYTA (Continued)									
Melosira varians	-	-	-	-	-	-	-	-	135
Navicula cryptocephala	1,215	406	-	1,485	946	1,350	473	406	675
Navicula pupula	68	-	-	-	-	-	-	-	-
Navicula rhyncocephala	-	-	-	-	406	-	-	-	-
Navicula salinarum	3,038	-	1,755	2,633	1,080	2,228	878	1,890	1,485
Navicula salinarum var. intermedia	-	406	-	-	-	-	-	-	-
Navicula tripunctata	473	136	270	540	-	338	135	-	540
Navicula viridula	170	-	-	-	-	-	-	-	-
Navicula sp. 1	68	-	-	-	-	-	-	-	-
Nitzschia dissipata	675	1,350	1,283	743	810	743	338	136	405
Nitzschia frustulum	743	810	1,148	1,418	676	743	135	136	270
Nitzschia hungarica	-	-	-	-	-	-	-	-	68
Nitzschia linearis	-	-	-	-	-	1	-	2	-
Nitzschia longissima var. closterium	-	-	-	68	-	-	-	-	-
Nitzschia sigmoidea	68	2	1	68	2	135	-	-	1
Nitzschia vermicularis	-	-	-	-	-	135	-	-	-
Nitzschia palea	-	136	6	68	136	203	-	136	-
Pleurosigma delicatulum	1	-	-	-	-	3	-	-	-
Rhiocosphenia curvata	68	-	-	-	-	-	-	-	-
Rhopalodia gibba	-	-	2	1	-	68	-	-	1
Rhopalodia gibberula	-	-	-	-	-	136	-	-	-
Surirella ovata	68	-	-	-	-	-	-	-	-
Surirella ulna	135	-	405	203	946	3	68	136	-
Synedra amphicephala	68	-	-	-	-	-	-	-	-

APPENDIX A-8-2 (Continued)

	Station								
	25			26			27		
	A	B	C	A	B	C	A	B	C
CYANOPHYTA									
Anabaena sp.	-	-	135	-	-	-	-	-	-
Lyngbya sp.	540	-	6,548	2,498	-	-	-	-	3,578
Rivularia sp.	1,687	50,084	405	743	3,240	1,148	-	6,210	405
CHLOROPHYTA									
Cladophora sp.	540	-	-	-	-	-	-	-	-
CHRYSOPHYTA									
Achnanthes lanceolata	135	-	-	-	-	-	-	-	-
Achnanthes minutissima	135	-	203	203	136	473	68	136	-
Amphora ovalis var. pediculus	-	136	-	-	810	-	-	136	-
Amphora perpusilla	-	-	68	135	-	743	68	-	-
Caloneis amphisbaena	2	-	-	-	-	-	1	-	1
Cocconeis pediculus	675	270	270	405	270	270	270	270	473
Cocconeis placentula	135	-	-	-	-	-	-	-	-
Cyclotella meneghiniana	-	-	135	68	-	-	135	-	-
Cymatopleura solea	68	-	-	1	2	2	-	136	1
Cymbella affinis	270	-	203	135	-	338	-	-	270
Cymbella sinuata	-	-	-	-	-	743	-	-	68
Cymbella ventricosa	-	-	-	203	-	-	-	-	-
Diatoma vulgare	103	136	203	270	270	473	270	-	203
Epithemia sorex	20,520	29,700	18,630	14,445	25,246	11,813	11,678	12,150	19,845
Fragilaria construens	-	-	-	-	-	1,350	-	-	-
Fragilaria vaucheriae	135	-	-	270	406	68	-	-	203
Gomphonema intricatum	135	-	-	-	-	135	-	-	135
Gomphonema olivaceum	68	810	675	608	946	338	68	-	473
Gomphonema parvulum	-	270	-	-	406	-	-	-	-
Gomphonema ventricosum	473	270	-	135	406	135	135	136	203
Gyrosigma acuminatum	3	-	1	1	136	68	1	-	68
			-						
			-						

APPENDIX A-8-2 (Continued)

	Station								
	28			29			30		
	A	B	C	A	B	C	A	B	C
CYANOPHYTA									
Lyngbya sp.	-	-	-	540	6,480	-	2,363	-	3,105
Oscillatoria sp.	-	-	-	-	-	4,793	-	-	-
Rivularia sp.	103	2,430	1,283	-	-	-	-	4,050	2,295
CHRYSOPHYTA									
Achnanthes minutissima	203	676	203	135	270	5,333	68	406	-
Amphora ovalis var. pediculus	-	-	-	-	68	68	-	-	68
Caloneis amphisbaena	2	-	68	1	-	1	68	-	-
Cocconeis pediculus	473	946	405	135	270	135	68	-	203
Cocconeis placentula	-	-	-	-	-	-	-	-	68
Cyclotella meneghiniana	135	-	405	-	-	-	-	-	-
Cymatopleura solea	68	-	-	-	-	-	-	-	-
Cymbella affinis	68	270	405	68	338	1,823	-	136	68
Cymbella delicotula	-	-	-	-	-	68	-	-	-
Diatoma vulgare	-	540	404	-	68	338	-	136	-
Epithemia sorex	3,578	18,226	8,775	8,303	4,590	2,025	8,910	28,756	18,968
Fragilaria pinnata	-	776	-	-	-	-	-	-	-
Fragilaria vaucheriae	-	270	14	-	-	540	203	136	-
Gomphonema intricatum	-	-	540	-	-	203	-	-	-
Gomphonema olivaceum	-	2,026	540	135	406	405	135	540	135
Gomphonema parvulum	-	-	-	135	-	270	-	-	-
Gomphonema ventricosum	68	136	135	-	68	270	-	270	68
Gyrosigma acuminatum	1	2	68	1	-	-	2	2	1
Navicula cryptocephala	68	1,080	878	1,013	338	3,983	473	810	270
Navicula salinarum	1,350	9,990	3,173	405	540	1,080	743	5,940	945
Navicula tripunctata	-	540	203	203	136	270	68	676	-
Navicula viridula	-	-	-	-	-	68	-	-	-
Navicula sp. 2	-	-	-	-	-	-	68	-	-
Nitzschia amphibia	-	-	-	-	-	-	-	136	-

APPENDIX A-8-2 (Continued)

	Station								
	28			29			30		
	A	B	C	A	B	C	A	B	C
CHRYSOPHYTA (Continued)									
Nitzschia chasei	-	-	-	-	-	-	68	-	68
Nitzschia dissipata	135	2,296	270	338	742	1,148	203	1,890	540
Nitzschia frustulum	473	1,080	945	68	1,012	1,215	270	810	473
Nitzschia holsatica	-	-	-	-	-	270	-	-	-
Nitzschia linearis	-	136	14	-	-	1	-	-	-
Nitzschia palea	68	-	338	-	68	608	-	-	68
Nitzschia sigmoidea	-	2	2	-	-	-	-	2	-
Pleurosigma delicatulum	-	-	1	-	-	-	-	-	-
Rhoicosphenia curvata	-	-	-	-	-	68	-	-	-
Rhopalodia gibba	1	-	68	135	-	1	7	-	270
Rhopalodia gibberula	-	136	-	-	4	-	-	406	-
Synedra amphicephala	-	-	68	68	-	-	-	-	-
Synedra pulchella	-	-	-	-	-	68	-	-	-
Synedra ulna	-	60	13	-	68	68	-	4	1
Surirella ovata	-	-	-	-	-	135	-	-	-

APPENDIX A-8-2 (Continued)

	Station								
	31			32			33		
	A	B	C	A	B	C	A	B	C
CYANOPHYTA									
Lyngbya sp.	-	-	-	-	-	-	2,498	-	4,050
Rivularia sp.	1,418	11,476	-	-	1,823	1,080	743	8,550	910
CHRYSOPHYTA									
Achnanthes minutissima	338	946	203	810	540	2,026	135	1,080	270
Amphipleura pellucida	-	-	-	-	-	-	135	-	-
Amphora perpusilla	-	-	-	-	68	-	-	-	-
Caloneis amphisbaena	-	136	-	135	4	-	-	-	-
Caloneis bacillum	-	-	-	68	-	-	-	-	-
Cocconeis pediculus	743	676	473	270	203	270	743	270	1,148
Cocconeis placentula	-	-	-	-	-	-	68	-	-
Cyclotella meneghiniana	-	-	68	203	-	-	-	-	135
Cymatopleura solea	-	2	-	1	1	-	2	-	1
Cymbella affinis	473	1,216	878	2,025	1,215	3,106	2,295	3,240	1,553
Diatoma turgida var. elongatum	-	-	-	-	-	136	-	-	-
Diatoma vulgare	68	1,080	473	540	405	1,620	3,375	1,350	4,658
Epithemia sorex	15,255	31,996	12,960	6,548	9,045	17,416	11,273	13,500	7,290
Fragilaria leptostauron	68	68	-	-	-	-	68	-	-
Fragilaria pinnata	68	-	-	-	-	-	-	-	-
Fragilaria vaucheriae	203	136	-	68	-	-	203	136	-
Gomphonema intricatum	203	540	-	135	68	946	1,013	406	878
Gomphonema olivaceum	743	676	540	1,283	675	2,970	1,215	1,080	1,080
Gomphonema paruulum	-	-	-	68	-	1,890	-	540	68
Gomphonema ventricosum	743	406	135	405	405	-	203	1,486	675
Gyrosigma acuminatum	-	-	-	68	5	136	-	-	68
Navicula cryptocephala	1,215	1,620	608	2,363	1,958	2,836	675	406	675
Navicula salinarum	1,485	3,510	1,013	5,738	2,768	6,616	1,418	1,216	2,160
Navicula tripunctata	68	946	-	608	608	1,620	135	-	203
Navicula viridula	-	-	-	68	68	-	-	-	-

APPENDIX A-8-2 (Continued)

	Station								
	31			32			33		
	A	B	C	A	B	C	A	B	C
CHRYSOPHYTA (Continued)									
Nitzschia apiculata	-	-	-	68	-	-	-	-	-
Nitzschia chasei	-	-	-	-	68	-	-	-	68
Nitzschia dissipata	203	2,700	878	3,578	2,430	3,646	405	946	473
Nitzschia frustulum	270	676	608	2,633	2,160	2,296	1,958	2,160	1,620
Nitzschia linearis	-	-	-	-	-	-	68	-	-
Nitzschia palea	-	-	68	68	-	-	-	-	270
Nitzschia sigmoidea	-	2	-	135	-	2	-	-	1
Rhiocosphenia curvata	68	-	-	68	-	-	-	-	-
Rhopalodia gibba	2	-	68	68	68	-	68	-	2
Rhopalodia gibberula	-	2	-	-	-	-	-	-	-
Surirella ovata	-	-	-	68	-	270	-	-	270
Synedra ulna	8	540	8	135	68	2	473	270	473

APPENDIX A-8-2 (Continued)

	Station 34			Station 35		
	A	B	C	A	B	C
CYANOPHYTA						
Oscillatoria sp.	-	-	-	270	-	-
Rivularia sp.	10,328	8,776	21,128	5,130	7,156	3,038
CHRYSOPHYTA						
Achnanthes minutissima	405	1,890	68	338	540	203
Amphipleura pellucida	-	2	-	-	-	-
Amphora ovalis var. pediculus	-	-	-	-	270	68
Amphora perpusilla	-	-	-	-	-	68
Caloneis amphisbaena	-	136	-	-	-	-
Caloneis bacillum	-	-	-	-	-	68
Cocconeis pediculus	135	-	68	270	406	68
Cocconeis placentula	-	-	-	338	-	-
Cyclotella meneghiniana	-	136	-	68	-	-
Cymatopleura solea	-	2	1	68	-	-
Cymbella affinis	-	946	270	338	1,350	540
Diatoma vulgare	338	270	1,148	675	136	1,418
Epithemia sorex	1,080	12,826	1,823	11,070	11,746	4,590
Fragilaria vaucheriae	68	136	-	270	-	68
Gomphonema intricatum	-	270	-	270	406	-
Gomphonema olivaceum	135	1,620	203	675	540	675
Gomphonema parvulum	-	-	-	-	270	-
Gomphonema ventricosum	-	406	68	68	136	270
Gyrosigma acuminatum	-	-	-	1	-	1
Navicula cryptocephala	338	270	473	1,283	2,430	1,080
Navicula salinarum	203	270	945	1,080	406	675
Navicula tripunctata	-	136	68	203	676	540
Nitzschia chasei	-	-	-	135	-	68
Nitzschia dissipata	68	270	203	1,148	406	270

APPENDIX A-8-2 (Continued)

	Station					
	34			35		
	A	B	C	A	B	C
CHRYSOPHYTA						
Nitzschia frustulum	338	1,216	405	1,148	-	1,350
Nitzschia holsatica	-	270	-	-	-	-
Nitzschia palea	-	136	-	68	-	-
Pleurosigma delicatulum	-	-	-	1	-	-
Rhiocosphenia curvata	-	-	-	68	-	-
Rhopalodia gibba	-	-	-	68	-	1
Rhopalodia gibberula	-	-	-	-	2	-
Synedra ulna	5	10	19	135	3,916	135
PHYRROPHYTA						
Gymnodinium sp.	-	-	-	-	-	68

APPENDIX A-8-3

DRY WEIGHT AND ORGANIC WEIGHT OF PERIPHYTON
DURING RBOSP AQUATIC BASELINE STUDIES,
OCTOBER - NOVEMBER 1974

APPENDIX A-8-3[1,2]

Station	Dry Weight (g)	Organic Weight (g)
1-A	0.0849	0.0177
1-B	0.0394	0.0130
1-C	0.0281	0.0057
2-A	0.3406	0.0374
2-B	0.8357	0.0483
2-C	0.7587	0.0509
3-A	0.1219	0.0240
3-B	0.1389	0.0258
3-C	0.0559	0.0722
4-A	0.0386	0.0047
4-B	0.4370	0.0373
4-C	0.1023	0.0136
5-A	0.7151	0.1020
5-B	2.6833	0.1915
5-C	1.1479	0.1331
7-A	1.1148	0.0873
7-B	2.2319	0.1459
7-C	1.2715	0.1086
8-A	0.0432	0.0098
8-B	0.1430	0.0 19
8-C	0.1410	0.0233
9-A	0.1937	0.0310
9-B	0.3310	0.0391
9-C	0.1072	0.0276
13-A	1.1532	0.2106
13-B	0.3589	0.0913
13-C	1.1355	0.1411
14-A	0.1418	0.0283
14-B	0.1476	0.0101
14-C	0.4692	0.0322
19-A	5.7315	0.9934
19-B	2.6418	0.5551
19-C	5.4713	1.1300
20-A	3.7265	0.1686
20-B	5.8974	0.2770
20-C	0.6465	0.0593

[1]Dry weight: weight at 105°C
Organic weight: loss on ignition at 550°C
[2]Samples taken from 50 cm^2 of substrate.
[2]Stations 6, 10-12, and 15-18 were dry at the time of sampling.

APPENDIX A-8-3 (Continued)

Station	Dry Weight (g)	Organic Weight (g)
21-A	3.6073	0.2046
21-B	3.7335	0.1954
21-C	3.4960	0.1442
22-A	5.5199	0.2287
22-B	0.3251	0.0294
22-C	0.2381	0.0194
23-A	5.8335	0.4083
23-B	4.3044	0.2812
23-C	4.7785	0.4036
24-A	13.4617	0.8839
24-B	10.5188	0.5971
24-C	7.1632	0.5457
25-A	22.5599	1.0184
25-B	9.5843	0.7054
25-C	20.1844	0.8762
26-A	7.7786	0.5515
26-B	9.6615	0.4307
26-C	16.4944	0.7866
27-A	17.9806	0.8136
27-B	11.4267	0.6438
27-C	22.2826	0.8498
28-A	12.8120	0.4166
28-B	5.7811	0.2700
28-C	4.3970	0.2594
29-A	5.1054	0.4150
29-B	5.9004	0.4558
29-C	6.3798	0.5546
30-A	4.5356	0.4154
30-B	7.3363	0.4346
30-C	6.3962	0.4579
31-A	5.0605	0.4459
31-B	4.0564	0.3650
31-C	4.6638	0.5110
32-A	5.3802	0.3305
32-B	5.4408	0.3812
32-C	5.0605	0.4151
33-A	0.6788	0.0062
33-B	1.6332	0.0767
33-C	1.0326	0.0763
34-A	1.4675	0.0941
34-B	0.9797	0.0520
34-C	1.6768	0.1632
35-A	8.1549	0.6785
35-B	11.3622	0.9368
35-C	3.7294	0.3952

APPENDIX A-9-1

LIST OF PERIPHYTON SPECIES OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, DECEMBER 1974 - JANUARY 1975

Cyanophyta
- Calothrix sp.
- Lyngbya sp.
- Plectonema sp.
- Rivularia sp.

Chlorophyta
- Cladophora sp.
- Spirogyra sp.
- Zygnema sp.

Chrysophyta
- Achnanthes lanceolata
- Achnanthes minutissima
- Amphipleura pellucida
- Amphiprora ornata
- Amphora ovalis
- Amphora ovalis var. pediculus
- Amphora perpusilla
- Caloneis amphisbaena
- Caloneis bacillum
- Cocconeis pediculus
- Cocconeis placentula
- Cyclotella meneghiniana
- Cymatopleura solea
- Cymbella affinis
- Cymbella microcephala
- Cymbella prostrata
- Cymbella sinuata
- Cymbella ventricosa
- Diatoma hiemale
- Diatoma tenue
- Diatoma vulgare
- Didymosphenia geminata
- Epithemia sorex
- Fragilaria construens
- Fragilaria crotonensis
- Fragilaria pinnata
- Fragilaria vacheriae
- Gomphonema intricatum
- Gomphonema olivaceum
- Gomphonema ventricosum

Chrysophyta (cont.)
Gyrosigma acuminatum
Hannaea arcus
Navicula arvensis
Navicula cryptocephala
Navicula minima
Navicula mutica
Navicula pelliculosa
Navicula salinarum
Navicula tripunctata
Navicula viridula
Navicula sp. 1
Navicula sp. 2
Nitzschia acicularis
Nitzschia apiculata
Nitzschia bacata
Nitzschia chasei
Nitzschia denticula
Nitzschia dissipata
Nitzschia frustulum
Nitzschia linearis
Nitzschia palea
Nitzschia sigmoidea
Nitzschia vermicularis
Pleurosigma delicatulum
Rhoicosphenia curvata
Rhopalodia gibba
Rhopalodia gibberula
Stephanodiscus tenuis
Surirella ovata
Synedra amphicephala
Synedra tenera
Synedra ulna

APPENDIX A-9-2

PERIPHYTON OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, DECEMBER 1974 - JANUARY 1975

APPENDIX A-9-2

	Station					
	3		4		8	
	A	B	A	B	A	B
CYANOPHYTA						
Calothrix sp.	-	270	-	-	-	-
Lyngbya sp.	41	-	-	-	-	-
CHLOROPHYTA						
Cladophora sp.	2	-	-	-	-	-
Zygnema sp.	-	203	-	-	-	-
CHRYSOPHYTA						
Achnanthes lanceolata	2,930	2,241	135	351	7	14
Achanathes minutissima	4,064	7,047	22,815	16,200	149	233
Caloneis bacillum	149	14	-	-	-	-
Cocconeis pediculus	14	-	-	-	-	-
Cocconeis placentula	14	-	-	-	-	-
Cymbella affinis	243	68	270	95	-	-
Cymbella microcephala	14	14	-	-	-	-
Cymbella ventricosa	27	14	-	-	-	-
Diatoma hiermale	14	392	-	-	-	-
Diatoma vulgare	-	-	41	-	-	27
Epithemia sorex	14	-	14	-	14	-
Epithemia zebra	27	2	-	-	-	-
Fragilaria constiuens	-	108	-	-	-	-
Fragilaria pinnata	-	14	-	-	-	-
Fragilaria vaucheriae	68	-	-	-	-	-
Gomphonema intricatum	432	41	1,458	2,012	-	14
Gomphonema olivaceum	-	-	41	-	-	-
Gyrosigma acuminatum	-	-	136	-	-	-
Meridion circulare	-	-	122	135	-	-
Navicula arvensis	149	81	-	-	-	-
Navicula cryptocephala	162	14	149	270	-	-

APPENDIX A-9-2 (Continued)

	Station					
	3		4		8	
	A	B	A	B	A	B
CHRYSOPHYTA (Continued)						
Navicula minima	41	54	-	-	-	-
Navicula pelliculosa	54	27	-	-	-	-
Navicula salinarum	-	-	-	27	-	-
Navicula tripunctata	14	14	-	-	-	-
Navicula viridula	14	-	-	-	-	-
Navicula sp. 1	14	-	-	-	-	-
Nitzschia denticula	149	14	14	14	-	-
Nitzschia dissipata	14	-	-	-	-	-
Nitzschia frustulum	1,499	2,093	-	14	20	-
Nitzschia linearis	1	14	378	257	-	-
Nitzschia palea	-	-	14	-	-	-
Nitzschia sigmoidea	1	-	-	-	-	-
Rhopalodia gibberula	14	-	-	-	-	-
Surirella ovata	14	-	14	-	-	-
Synedra amphicephala	-	-	-	14	7	-
Synedra ulna	1	-	-	81	-	-

APPENDIX A-9-2 (Continued)

	Station					
	9		13		14	
	A	B	A	B	A	B
CYANOPHYTA						
Lyngbya sp.	128	150	16	-	-	-
CHLOROPHYTA						
Spirogyra sp.	-	-	4	-	-	-
CHRYSOPHYTA						
Achnanthes lanceolata	-	258	180	-	-	-
Achnanthes minutissima	230	476	240	3,510	10,125	12,460
Cocconeis pediculus	-	-	-	-	14	-
Cymbella affinis	-	-	60	-	1,539	1,013
Cymbella microcephala	-	-	-	-	-	14
Cymbella ventricosa	-	-	-	-	14	-
Diatoma vulgare	-	174	-	-	-	14
Epithemia sorex	7	18	120	68	-	14
Fragilaria crotonensis	-	120	-	-	-	-
Gomphonema intricatum	-	6	-	68	81	81
Gomphonema ventricosum	-	12	-	-	-	-
Gyrosigma acuminatum	-	-	-	2	-	-
Meridion circulare	-	96	-	-	-	-
Navicula cryptocephala	14	66	1,920	2,633	135	27
Navicula mutica	-	-	-	-	-	14
Navicula salinarum	-	24	-	-	-	-
Nitzschia acicularis	-	-	-	-	41	54
Nitzschia baccata	-	-	-	-	189	-
Nitzschia denticula	-	-	-	-	973	1,958
Nitzschia dissipata	-	18	-	-	-	-
Nitzschia frustulum	-	-	-	-	554	270
Nitzschia linearis	7	144	7	135	-	-
Nitzschia palea	-	-	-	68	27	54
Surirella ovata	7	30	-	-	14	-
Synedra amphicephala	-	-	-	-	2,133	270
Synedra tenera	-	-	-	-	14	-
Synedra ulna	-	12	-	5	257	54

APPENDIX A-9-2 (Continued)

	Station					
	19		23		24	
	A	B	A	B	A	B
CYANOPHYTA						
Calothrix sp.	-	-	-	270	2,015	-
Lyngbya sp.	-	-	1,800	878	3,173	1,148
Plectonema sp.	-	-	-	135	-	-
Rivularia sp.	-	135	-	-	-	-
CHLOROPHYTA						
Cladophora sp.	-	-	1,191	-	-	-
CHRYSOPHYTA						
Achnanthes lanceolata	270	243	300	-	-	-
Achnanthes minutissima	608	270	960	135	203	135
Amphiphora ornata	-	135	-	-	-	-
Amphora ovalis var. pediculus	-	-	-	270	675	68
Caloneis amphisbaena	-	-	-	68	135	68
Caloneis bacillum	-	-	-	-	68	-
Cocconeis pediculus	405	-	-	-	135	68
Cocconeis placentula	135	68	780	270	-	-
Cyclotella meneghiniana	338	-	-	-	-	-
Cymatopleura solea	-	-	1	-	2	2
Cymbella affinis	68	68	360	270	1,958	1,283
Cymbella sinuata	-	-	-	203	-	-
Cymbella prostrata	-	-	1	-	-	-
Cymbella ventricosa	-	-	-	-	-	68
Diatoma tenue	-	203	-	-	-	-
Diatoma vulgare	-	-	1,080	2,498	3,915	2,023
Epithemia sorex	-	-	6,060	10,260	14,512	8,573
Fragilaria pinnata	-	-	-	-	-	135
Fragilaria vaucheriae	-	-	-	135	-	-
Gomphonema intricatum	-	-	-	-	60	68
Gomphonema olivaceum	-	405	480	203	-	-

APPENDIX A-9-2 (Continued)

	Station					
	19		23		24	
	A	B	A	B	A	B
CHRYSOPHYTA (Continued)						
Gomphonema ventricosum	-	-	-	-	-	-
Gyrosigma acuminata	7	-	1	-	68	68
Navicula arvensis	-	405	-	-	-	-
Navicula cryptocephala	1,620	3,848	840	810	3,848	1,620
Navicula pelliculosa	540	-	-	-	-	-
Navicula galinarum	68	68	1,140	608	2,362	878
Navicula tripunctata	-	-	-	135	338	203
Navicula viridula	675	2,093	120	-	473	-
Nitzschia apiculata	68	1,013	-	-	-	-
Nitzschia baccata	270	-	-	-	-	-
Nitzschia chasei	-	-	-	338	-	270
Nitzschia denticula	135	-	-	-	-	-
Nitzschia dissipata	-	-	600	743	2,970	2,093
Nitzschia frustulum	4,995	1,620	-	472	2,025	1,485
Nitzschia linearis	1	743	10	-	135	68
Nitzschia palea	405	2,228	-	-	135	-
Nitzschia sigmoidea	-	-	-	-	2	7
Nitzschia vermicularis	-	-	1	-	-	-
Pleurosigma delicatulum	10	5	-	-	-	68
Rhopalodia gibba	-	-	-	-	68	68
Stephanodiscus tenuis	68	-	-	-	-	-
Surirella ovata	1,620	16,335	-	-	203	135
Synedra amphicephala	810	6,278	-	-	-	-
Synedra pulchella	-	68	-	-	-	-
Synedra ulna	68	338	1	338	1,688	270

APPENDIX A-9-2 (Continued)

	Station					
	25		26		27	
	A	B	A	B	A	B
CYANOPHYTA						
Calothrix sp.	810	-	405	1,148	1,148	743
Lyngbya sp.	1,283	1,380	1,418	1,553	540	743
Plectonema sp.	135	-	-	-	-	-
CHLOROPHYTA						
Cladophora sp.	-	-	-	-	270	-
CHRYSOPHYTA						
Achnanthes lanceolata	-	660	-	-	-	-
Achnanthes minutissima	608	1,020	135	135	68	203
Amphora ovalis var. pediculus	68	120	68	270	2,498	203
Caloneis amphisbaena	1	1	68	-	1	68
Cocconeis pediculus	-	660	405	270	68	473
Cocconeis placentula	-	300	-	-	68	-
Cyclotella meneghiniana	-	1,080	68	-	-	135
Cymatopleura solea	-	-	4	-	2	4
Cymbella affinis	1,350	1,020	3,105	945	270	608
Cymbella sinuata	-	-	-	-	-	68
Diatoma vulgare	6,345	18,060	5,873	3,240	1,823	1,013
Didymosphaenia geminata	-	-	1	-	-	1
Epithemia sorex	4,793	5,400	7,223	8,303	3,848	14,445
Fragilaria construens	-	-	473	-	-	-
Fragilaria leptostauron	-	-	-	68	-	-
Fragilaria pinnata	-	-	68	-	-	405
Fragilaria vaucheriae	135	-	135	-	-	-
Gomphonema intricatum	473	900	68	135	203	338
Gomphonema olivaceum	743	1,260	1,013	405	810	608
Gomphonema ventricosum	135	480	810	338	-	20
Gyrosigma acuminatum	-	-	68	7	68	68
Navicula cryptocephala	1,755	1,020	2,700	1,688	203	1,418

APPENDIX A-9-2 (Continued)

	Station					
	25		26		27	
	A	B	A	B	A	B
CHRYSOPHYTA (Continued)						
Navicula minima	-	-	-	-	1,418	-
Navicula salinarum	540	180	3,173	1,350	945	878
Navicula tripunctata	68	1,140	405	473	338	203
Navicula viridula	135	660	405	-	-	135
Nitzschia apiculata	-	-	-	68	-	-
Nitzschia baccata	338	-	203	68	-	-
Nitzschia chasei	-	-	135	405	743	-
Nitzschia dissipata	608	2,520	3,848	2,565	1,080	1,283
Nitzschia frustulum	743	-	1,958	405	608	1,350
Nitzschia linearis	-	780	-	-	-	-
Nitzschia palea	68	360	135	203	-	-
Nitzschia sigmoidea	1	1	7	8	-	2
Nitzschia vermicularis	-	-	135	-	-	-
Nitszchia sp.	-	-	68	-	-	-
Rhoicosphenia curvata	-	-	-	-	135	-
Rhopalodia gibba	1	-	-	2	-	203
Rhopalodia gibberula	-	-	-	-	1	-
Stephanoidiscus tenuis	-	60	-	-	-	-
Surirella ovata	-	-	203	-	-	68
Synedra amphicephala	-	-	-	-	135	-
Synedra ulna	203	480	5,738	338	270	540

APPENDIX A-9-2 (Continued)

	Station					
	29		30		31	
	A	B	A	B	A	B
CYANOPHYTA						
Calothrix sp.	-	-	3,038	270	1,013	1,620
Lyngbya sp.	3,510	878	270	1,350	2,093	5,535
Plectonema sp.	-	-	-	-	135	-
CHLOROPHYTA						
Cladophora sp.	-	-	-	-	24	-
CHRYSOPHYTA						
Achnanthes lanceolata	-	34	-	-	-	-
Achnanthes minutissima	2,261	540	68	-	338	1,688
Amphipleura pellucida	-	-	1	-	-	-
Amphora ovalis var. pediculus	-	-	608	-	270	135
Amphora perpusilla	-	34	-	-	-	-
Amphora sp.	-	-	1,418	-	-	-
Caloneis amphisbaena	34	-	-	68	-	-
Cocconeis pediculus	68	-	68	-	810	203
Cocconeis placentula	-	-	68	-	-	-
Cymatopleura solea	-	-	2	1	1	1
Cymbella affinis	1,316	38	945	203	743	743
Diatoma vulgare	270	371	540	2,700	1,823	1,148
Epithemia sorex	1,181	2,396	6,278	5,670	5,468	2,363
Fragilaria vaucheriae	68	169	68	135	-	-
Fragilaria pinnata	-	-	-	-	203	-
Gomphonema intricatum	304	101	-	68	-	-
Gomphonema olivaceum	68	34	405	270	540	270
Gomphonema ventricosum	34	34	68	135	338	135
Gyrosigma acuminatum	-	34	2	1	68	1
Pleurosigma delicatulum	-	1	-	-	68	1

APPENDIX A-9-2 (Continued)

	Station					
	29		30		31	
	A	B	A	B	A	B
CHRYSOPHYTA (Continued)						
Navicula cryptocephala	473	304	1,958	878	-	405
Navicula tripunctata	-	4,455	135	68	405	203
Navicula salinarum	273	203	608	540	810	270
Navicula viridula	-	34	-	-	-	-
Navicula sp. 2	-	-	-	68	-	-
Nitzschia baccata	-	-	68	-	-	-
Nitzschia chasei	-	-	135	135	270	-
Nitzschia dissipata	34	2,261	1,418	1,283	3,038	1,688
Nitzschia frustulum	270	574	945	1,013	1,013	743
Nitzschia linearis	-	-	68	-	-	-
Nitzschia sigmoidea	-	1	2	1	1	1
Nitzschia vermicularis	-	-	-	-	-	1
Rhopalodia gibba	-	68	68	4	68	1
Surirella ovata	-	-	-	-	135	-
Synedra amphicephala	-	-	135	-	-	-
Synedra ulna	1	169	203	338	338	125

APPENDIX A-9-2 (Continued)

	Station					
	32		33		34	
	B	C	A	B	A	B
CYANOPHYTA						
Calothrix sp.	2,363	-	405	405	608	-
Lyngbya sp.	3,105	2,340	3,105	1,080	2,295	9,923
Plectonema sp.	-	720	-	338	-	-
CHLOROPHYTA						
Cladophora sp.	-	-	-	-	-	-
CHRYSOPHYTA						
Achnanthes lanceolata	-	-	-	-	68	-
Achnanthes minutissima	2,835	480	338	405	270	-
Amphiprora ovata	68	-	-	-	-	-
Amphora ovalis	-	1	-	-	-	-
Amphora ovalis var. pediculus	-	-	68	203	-	-
Amphora perpusilla	-	-	-	68	-	-
Caloneis amphisbaena	-	-	-	-	68	1
Cocconeis pediculus	-	-	203	68	135	203
Cocconeis placentula	-	-	-	-	68	-
Cyclotella meneghiniana	-	180	68	-	-	68
Cymatoplura solea	-	-	4	1	-	-
Cymbella affinis	743	540	1,418	608	270	675
Cymbella sinuata	-	360	-	-	-	-
Cymbella ventricosa	68	-	-	-	-	-
Diatoma vulgare	473	840	1,823	1,485	1,013	810
Epithemia sorex	2,565	4,260	8,978	3,645	6,075	4,928
Fragilaria pinnata	-	-	-	203	-	-
Fragilaria vaucheriae	-	-	68	-	-	-
Gomphonema intricatum	675	300	-	135	203	203
Gomphonema olivaceum	68	60	608	203	135	203
Gomphonema ventricosum	-	-	135	135	68	-
Gyrosigma acuminatum	-	-	7	1	1	1
Navicula cryptocephala	743	540	1,553	1,418	608	743

APPENDIX A-9-2 (Continued)

	Station					
	32		33		34	
	B	C	A	B	A	B
CHRYSOPHYTA (Continued)						
Navicula salinarum	68	180	1,350	1,148	270	135
Navicula tripunctata	68	180	405	135	68	68
Navicula viridula	-	-	68	-	-	135
Nitzschia apiculata	-	-	68	-	-	-
Nitzschia baccata	-	300	-	-	-	-
Nitzschia chasei	-	-	68	203	-	68
Nitzschia dissipata	473	60	3,780	1,688	203	945
Nitzschia frustulum	135	600	945	743	270	810
Nitzschia linearis	-	420	-	-	-	-
Nitzschia palea	68	-	-	-	-	68
Nitzschia sigmoidea	-	-	1	2	1	1
Pleurosigma delicatulum	-	-	1	-	-	-
Rhoicosphenia curvata	-	-	68	-	-	-
Rhopalodia gibba	-	2	68	-	-	1
Surirella ovata	135	-	-	-	-	68
Synedra amphicephala	203	-	-	-	-	-
Synedra ulna	8	2	810	810	63	135

APPENDIX A-9-2 (Continued)

	Station 35	
	A	B
CYANOPHYTA		
Calothrix sp.	68	-
Lyngbya sp.	8,910	8,100
CHLOROPHYTA		
Cladophora sp.	-	24
CHRYSOPHYTA		
Achnanthes minutissima	270	270
Amphora ovalis var. pediculus	473	-
Amphora perpusilla	-	135
Cocconeis pediculus	68	-
Cymbella affinis	135	473
Diatoma vulgare	-	1,755
Epithemia sorex	1,823	2,970
Fragilaria vaucheriae	68	-
Gomphonema intricatum	338	68
Gomphonema olivaceum	-	68
Hannea arcus	68	-
Navicula cryptocephala	203	743
Navicula salinarum	135	68
Navicula tripunctata	135	-
Nitzschia dissipata	203	608
Nitzschia frustulum	203	338
Nitzschia vermicularis	-	1
Surirella ovata	-	68
Synedra amphicephala	-	135
Synedra ulna	6	11

2.4.5. Benthos

2.4.5.2. Methods

During the initial sample collection, a modified Surber sampler proved to be effective in sampling at the majority of sampling sites. This sampler is cylindrical with a metal rim (approximately 12.5 cm; 5 inches; in width) and can be maneuvered down into a rubble substrate. In some pond areas on or near Tract C-a, an Ekman dredge was used effectively in obtaining benthic samples. Triplicate samples were taken at each station.

In some areas of the White River where the waters were too deep and/or too rapid for use of either of the above techniques or where ice accumulations and floating ice hampered sampling efforts, a D-frame net was utilized. This sampler consists of a rectangular (45.7 cm x 20.3 cm; 18" x 8") metal ring with an attached rectangular bag (45.7 cm x 20.3 cm x 25.4 cm; 18" x 8" x 10"). A two-piece handle 167.6 cm (66") in length was attached to the frame to aid in stabilizing the sampler. Organisms were dislodged from the sampling area by kicking. Samples obtained with this sampling device were qualitative in nature; however data from these samples give a percentage composition per sample.

After collections, benthos samples were washed in buckets fitted with bottoms of U. S. Standard No. 30 sieve, placed in polyethylene bottles, and preserved with neutralized 10% formalin.

Artificial substrates will be used, in addition to the Surber sampler, in order to collect those macro-invertebrates, such as Trichoptera, Ephemeroptera, Odonata, that do not generally live in the mud bottom areas.

The type of artificial substrate to be used is the cylindrical basket device described by Mason et al. (1971). The basket will be filled with natural substrate.

The basket samplers will be placed in the photic zone using floats and/or steel anchors for placement. In retrieval of the basket sampler, a 30-mesh grid bolting cloth bag will be placed around the basket to prevent escape of organisms as the sampler is raised through water column. The sampler will then be placed in a bucket and dismantled. A tooth brush will be used to clean the substrate, which will then be removed. The remaining material including the organisms will then be washed through a U. S. Standard No. 30 sieve and preserved in neutralized 10% formalin solution.

Standard methods of sample processing and analysis were utilized in the laboratory. The benthic samples were first rinsed in 8-inch (20.3 cm) No. 60 sieves with light-pressure fine spray to remove any fine sediments. The samples were then hand-sorted under 6X magnification. Organisms were

removed from the sample with forceps, eye droppers and probes to petri-dishes or watch-glasses containing water. Samples were systematically searched, pushing examined portions aside. Any questionable material was also removed along with the organisms and examined under dissecting microscopes. The organisms were then phenotypically sorted and stored in plastic capsules and 4-dram vials in 70% ethanol. All plastic capsules and 4-dram vials for a given sample were labeled and stored together.

With few exceptions, benthic organisms were identifiable to the generic level without the use of special preparation. The standard procedure was to identify the organisms to the lowest taxon possible. Identifications of individuals were usually made under the dissecting microscope or with temporary slides (under water) using a compound microscope. References used in identification are listed at the end of this section.

After identification and enumeration, specimens were separated by lowest identifiable taxon and were stored in sample jars in 70% ethanol, collectively by sample replicate. A special reference or voucher collection was maintained apart from the other specimens.

Only those individuals which were living at the time of collection, as indicated by presence of fleshy tissue, were enumerated for the purpose of estimating populations. Empty mollusc sheels, exuvia, reproductive structures, etc. were retained as aids in identification and compilation of qualitative species lists, but were not used for estimates of population densities.

Benthos samples were stored and properly preserved for future analysis, upon call. Each sample was identified by date, time of day collected, and station, with indication of preservatives used.

Chironomidae, Simuliidae, and Oligochaeta were specially treated to facilitate identification. Chironomids, Oligochaetes, and and Simuliids were cleared with xylene and mounted on permanent slides with Canada balsam. Only complete oligochaetes with intact anterior portions were used in enumeration.

Voucher specimens were identified to lowest possible taxon and retained for future reference.

Methods of analysis for sediment chemistry samples are described in Table 3 (p. 2.4.42).

2.4.5.3. Results

The benthos data from October - November is presented Appendix A-10-2. Appendix A-10-3 lists drift macrobenthos data for the initial sampling period.

In the October - November 1974 benthos samples large numbers of insects were in their earliest instars and thus many of those specimens could be identified only to family level (since the mature state of the larvae is necessary for generic or specific identification). At the headwater stations, a total of 69 taxa were observed; the most abundant of these were the Chironomidae, Simuliidae, Tipulidae, Ephemeroptera, and Plecoptera. At the Tract stations, a total of 71 taxa were found. The most abundant of these were Chironomidae, Simuliidae, Oligochaeta, Ephemeroptera, and Plecoptera. At the Yellow Creek stations, a total of 65 taxa were found; the most abundant organisms belonged to the Oligochaeta, Chironomidae, and Ephemeroptera. At the White River stations, the most abundant species belonged to the Ephemeroptera (Ephemerella and Rhithrogena), Trichoptera (Hydropsychidae), and Oligochaeta. A total of 93 taxa were found in the White River during this sampling period. As indicated in Appendix A-11-1, a total of 135 macroinvertebrate taxa were found during the October - November sampling.

Benthos data from the December 1974 - January 1975 collecting period are presented in Appendix A-11-2.

Analysis of December 1974 - January 1975 macroinvertebrate samples completed to date presents the following picture of the benthos community during that period. At the headwater stations, a total of 23 taxa (excluding Oligochaeta and Chironomidae) were found, the most abundant taxa belonged to the Ephemeroptera, Chironomidae, Simuliidae, and Oligochaeta. At Tract stations, a total of 23 taxa were observed; the most abundant taxa included the Chironomidae, Simuliidae, Ephemeroptera, and Oligochaeta. In Yellow Creek, 14 taxa were observed and the most abundant organisms were Chironomidae, Simuliidae, and Oligochaeta. In the White River, the most abundant taxa belonged to the Ephemeroptera (Ephemerella and Rhithrogena), Chironomidae, and Trichoptera; a total of 45 taxa have been observed in White River samples for the second collecting date. As indicated in Appendix A-11-1, a total of 63 macroinvertebrate taxa, exclusive of Oligochaeta and Chironomidae, have been identified in the December 1974 - January 1975 samples to date.

APPENDIX A-10-1

MACROINVERTEBRATE TAXA COLLECTED DURING RBOSP
AQUATIC BASELINE STUDIES, OCTOBER - NOVEMBER 1974

Cnidaria
  Hydrozoa
    Hydridae
      Hydra

Platyhelminthes
  Tubellaria
    Tricladida

Nematoda

Mollusca
  Gastropoda
    Basommatophora
    Physidae
      Physa Draparnaud

Annelida
  Hirudinea
    Rhyncobdellida
    Glossiphoniidae
      Helobdella stagnalis (Linnaeus)

Oligochaeta
  Enchytraeidae
  Naididae
    Chaetogaster spp.
    Chaetogaster diastrophus
    Nais spp.
    N. elinguis
    N. cf. behningi
    Pristina
  Tubificidae
    Ilyodrilus templetoni
    Limnodrilus claparedeianus
    L. hoffmeisteri
    L. udekemianus
    Tubifex sp.
    Immature tubificids w/o capilliform chaetae
    Immature tubificids w capilliform chaetae
  Rhyacrodrilinae

- Arthropoda
  - Arachnoidea
    - Acari
  - Crustacea
    - Amphipoda
    - Talitridae
      - *Hyallela azteca* (Saussure)

- Insects
  - Collembola
  - Ephemeroptera
    - Heptageniidae
      - *Epeorus* Eaton
      - *Heptagenia* Walsh
      - *Rhithrogena* Eaton
    - Baetidae
      - *Baetis* Leach
      - *Callibaetis* Eaton
    - Leptophlebiidae
      - *Choroterpes* Eaton
      - *Paraleptophlebia* Lestage
      - *Traverella albertana* (McDunnough)
    - Ephemerellidae
      - *Emphermerella* Walsh
    - Tricorythidae
      - *Tricorythodes* Ulmer
    - Caenidae
      - *Caenis* Stephens

- Odonata
  - Zygoptera
    - Coenagrionidae
      - *Amphiagrion abbreviatum* (Selys)
      - *Argia* Rambur
      - *Enallagma* Charpentier
  - Anisoptera
    - Gomphidae
      - *Ophiogomphus severus* Hagen

Plecoptera
Eulhognatha
Capniidae
Capnia Pictet
Systellognatha
Perlodidae
Isogenoides Klapalek
Isoperla Banks
Chloroperlidae
Perlidae
Claassenia sabulosa (Banks)

Hemiptera
Corixidae
Cenocorixa Hungerford
C. utahensis (Hungerford)
Gerridae
Gerris Fabricius
Coleoptera
Dytiscidae
Deronectes Sharp
D. coloradensis (Fall)
Oreodytes Seidlitz
Elmidae
Dubiraphia Sanderson
D. giulianii VanDyke
Microcylloepus Hinton
M. pusillus (LeConte)
Optioservus Sanderson
Zaitzevia Champion
Z. parvula (Horm)

Trichoptera
Hydropsychidae
Cheumatopsyche Wallengren
Hydropsyche Pictet
Hydroptilidae
Hydroptila Dalman
Neotrichia Morton
Limnephilidae
Hesperophylax Banks
Leptoceridae
Oecetis McLachlan

Lepidoptera
- Pyralididae

Diptera
- Tipulidae
  - Dicranota Zetterstedt
  - Eriocera Macquart
  - Hexatoma Latreille
  - Holorusia Loew
  - Limnophila Macquart
  - Ormosia Rondani
- Psychodidae
  - Pericoma Walker
- Thaumaleidae
- Ceratopogonidae
- Chironomidae
  - Tanypodinae
    - Ablabesmyia
    - Conchapelopia
    - Procladius
    - Psectrotanypus (Macropelopia)
  - Diamesinae
    - Diamesa
    - Monodiamesa
    - Odontomesa
    - Prodiamesa near olivacea
    - Prodiamesa sp. 1
  - Orthocladiinae
    - Orthocladiinae sp. 1
    - Orthocladiinae sp. 2
    - Orthocladiinae sp. 3
    - Cardiocladius
    - Chaetocladius sp. 1
    - Chaetocladius sp. 2
    - Crictopus bicinctus
    - Cricotopus cf. trifacia
    - Cricotopus spp.
    - Corynoneura
    - Eukiefferiella
    - Orthocladius spp.
    - Parakiefferiella
    - Pseudosmittia
    - Thienemanniella

Chironominae
Chironomus
Cryptochironomus
Dicrotendipes
Microtendipes
Paracladopelma
Paratendipes
Phaenopsectra (Phaenopsectra)
P. (Tribelos)
Polypedilum s. s. fallax agoup
P. "tripodura" group
Pseudochironomus
Stictochironomus
Tanytarsini
Cladotanytarsus
Micropsectra
Paratanytarsus
Rheotanytarsus
Tanytarsus
Simulidae
Simulium Latreille
S. arcticum Malloch
S. argus Williston
S. canadense Hearle
S. vittatum Zetterstedt
Stratiomyiidae
Euparyphus Gerstaecker
Tabanidae
Chrysops Miegen
Tabanus Linneaus
Rhagionidae
Atherix variegata Walker
Empididae
Hemerodromia Meigen
Dolichpodidae
Hydrophorus Fallen
Syrphidae
Chrysogaster Meigen
Anthomyiidae
Limnophora aequifrons Stein
L. discreta Stein

APPENDIX A-10-2

BENTHOS (MACROINVERTEBRATES) OBSERVED
DURING RBOSP AQUATIC BASELINE STUDIES,
OCTOBER - NOVEMBER 1974

(Data are expressed as organisms/m^2 for collections
with either modified Surber Sampler or Ekman Dredge.)

APPENDIX A-10-2

Taxon	Sampling Method	Stations 1 Mod. Surber A	B	C	2 Mod. Surber A	B	C
Tricladida		1372	113	188			
Nematoda					19		19
Physa							
Acari		19			19		
Hyallela azteca							
Baetidae		902	113	677			
Baetis							
Argia							
Enallagma							
Plecoptera		1711	545	2275	113		38
Oreodytes		19				19	
Hydropsychidae							
Hydroptila							
Limnephilidae					113		
Hesperophylax		1222	583	790		113	94
Tipulidae							
Antocha						113	
Dicranota		19		75	132		113
Holorusia		696	470	658	696	395	188
Limnophila		188	188	188			
Ormosia		414	301	169	38	38	56
Pericoma		38		19			
Ceratopogonidae		38	19	38			19
Simulidae							
Simulium							
Simulium argus							
Simulium vittatum							
Euparyphus		19		38			

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 1 Mod. Surber A	1 Mod. Surber B	1 Mod. Surber C	2 Mod. Surber A	2 Mod. Surber B	2 Mod. Surber C
Chrysops							
Tabanus							
Hemerodromia		19					
Hydrophorus		19					
Chrysogaster							
Limnophora aequifrons		19		19	207	188	150
Limnophora discreta						19	
Conchapelopia		19	19	19			
Psectrotanypus (Macropelopia)		75	75		50	19	
Diamesa		19		19	74	19	25
Prodiamesa near olivacea		19					
Prodiamesa sp. 1				19			
Orthocladiinae		19			50	19	25
Chaetocladius sp. 1							
Chaetocladius sp. 2		38		56	321	244	198
Cricotopus bicinctus							
Cricotopus spp.							
Corynoneura		19		38	247	56	
Eukiefferiella spp.					346	338	25
Orthocladius spp.							
Parakiefferiella							
Pseudosmittia							
Thienemanniella							
Chironomini							
Paratendipes							
Phaenopsectra (Phaenospsectra)							19
Polypedilum s.s. fallax group		19			25		
Polypedilum "Tripodura" group					50		

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 1 Mod. Surber A	B	C	2 Mod. Surber A	B	C
Stictochironomus							25
Tanytarsini							
Micropsectra		790	1034	1260	1236	470	2084
Paratanytarsus							
Tanytarsus			19	19		56	99
Enchytraeidae					19		
Nais spp.							
Ilyodrilus templetoni							
Limnodrilus hoffmeisteri							
Limnodrilus udekemianus							
Tubifex sp.							
Immature Tubificidae w/o capilliform chaetae					19		
Immature Tubificidae w/ capiliform chaetae							
Rhyacodrilinae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 3 Mod. Surber A	B	C	4 Mod. Surber A	B	C
Tricladida							
Nematoda		19		19		19	75
Physa							
Acari							
Hyallela azteca							
Baetidae		94	38	56	564	9212	7652
Baetis						38	
Argia							
Enallagma							
Plecoptera					226	3798	1429
Oreodytes							
Hydropsychidae							
Hydroptila							
Limnephilidae							
Hesperophylax							
Tipulidae						38	
Holorusia		169	526	75	75	150	19
Antocha							38
Dicranota							
Limnophila							
Ormosia				38		19	
Pericoma							19
Ceratopogonidae		1278	282	226		38	19
Simuliidae					150	3760	1391
Simulium					38	733	545
Simulium argus					56	207	150
Simulium vittatum							
Euparyphus						38	

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 3 Mod. Surber A	B	C	4 Mod. Surber A	B	C
Chrysops				19			
Tabanus			19			19	
Hydrophorus							
Hemerodromia							
Chrysogaster		38		19			
Limnophora aequifrons		132	113	94	188	696	470
Limnophora discreta						19	
Chironomidae							
Tanypodinae							
Ablabesmyia							
Conchapelopia					19		25
Procladius s.s.							
Psectrotanypus (Macropelopia)		1412	226	564	19		
Diamesinae							
Diamesa					263	414	694
Monodiamesa							
Odontomesa							
Prodiamesa near olivacea							
Prodiamesa sp. 1							
Orthocladiinae		33			38	263	223
Orthocladiinae sp. 1							
Orthocladiinae sp. 2							
Orthocladiinae sp. 3							
Cardiocladius							
Chaetocladius sp. 1				19	38	94	
Chaetocladius sp. 2					38	733	322
Cricotopus bicinctus							
Cricotopus c.f. trifacia							
Cricotopus spp.							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 3 A	3 Mod. Surber B	3 C	4 A	4 Mod. Surber B	4 C
Corynoneura						113	74
Eukiefferiella					19	451	99
Orthocladius spp.		131	19	19	75	263	149
Parakiefferiella							25
Parametriocnemus							
Pseudosmittia			19			19	
Thienemanniella					113	564	645
Chironominae							
Chironomini						19	
Chironomus							
Cryptochironomus							
Dicrotendipes							
Microtendipes							
Paracladopelma							
Paratendipes		98	94	75			
Phaenopsectra (Phaenopsectra)							
Phaenopsectra (Tribelos)							
Polypedilum s.s. fallax group				19			19
Polypedilum "Tripodura" group							
Pseudochironomus							
Stictochironomous					19		
Tanytarsini							
Cladotanytarsus							
Micropsectra		1412	169	489			38
Paratanytarsus							
Rheotanytarsus							
Tanytarsus		131	19	38			56
Oligochaeta							
Enchytraeidae		19					

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 3 Mod. Surber A	B	C	4 Mod. Surber A	B	C
Haplotaxidae							
Naididae							
Chaetogaster sp.							
Chaetogaster diastrophus							
Nais spp.		714		846	75		
Nais elinguis							
Nais c.f. behningi							
Pristina							
Tubificidae							
Ilyodrilus templetoni							
Limnodrilus claparedeianus							
Limnodrilus hoffmeisteri							
Limnodrilus udekemianus							
Tubifex sp.							
Immature Tubificidae w/o capilliform chaetae							
Immature Tubificidae w/ capilliform chaetae							
Rhyacodriliinae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 7 Mod. Surber A	B	C	8 Mod. Surber A	B	C
Nematoda				56			19
Physa							
Acari					38		
Collembola						19	
Ephemeroptera							19
Baetidae		1109	244	1617	7971	7595	6486
Baetis						38	
Callibaetis							
Epeorus							19
Plecoptera		75		169	2162	2820	1654
Capniidae							188
Capnia					357	395	
Isoperla					75	19	
Corixidae							
Cenocorixa							
Cenocorixa utahensis							
Trichoptera							
Hydropsychidae							
Hydropsyche		301	301	38			
Hydroptila				19			
Limnephilidae							19
Holorusia					38	75	38
Antocha						19	
Dicranota							
Ormosia							
Pericoma							
Ceratopogonidae		19		19			
Simuliidae		696	132	489	620	865	338

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 7 A	7 Mod. Surber B	7 C	8 A	8 Mod. Surber B	8 C
Simulium		188	38	113	414	338	38
Simulium argus		188	132	75	56	226	56
Simulium canadense		19	19				
Euparyphus							
Empididae			19				
Hemerodromia							
Limnophora aequifrons		19			338	56	188
Limnophora discreta					56	56	94
Tanypodinae							
Conchapelopia					19	38	19
Procladius s.s.							
Psectrotanypus (Macropelopia)							
Diamesinae						19	
Diamesa							
Orthocladiinae		56	19	207			
Orthocladiinae sp. 2						75	
Chaetocladius sp. 1				19			
Chaetocladius sp. 2		56	132	414			
Cricotopus spp.							
Eukiefferiella spp.		263	263	56	19	132	38
Orthocladius spp.			19	19		19	
Parakiefferiella							
Pseudosmittia					19		
Thienemanniella					19	19	19
Microtendipes				19			
Phaenopsectra (Phaenopsectra)							
Polypedilum s.s. fallax group			56				
Polypedilum "Tripodura" group							
Pseudochironomus							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 7 Mod. Surber A	7 Mod. Surber B	7 Mod. Surber C	8 Mod. Surber A	8 Mod. Surber B	8 Mod. Surber C
Stichtochironomous							
Tanytarsini							
Cladotanytarsus							
Micropsectra			19		19		38
Paratanytarsus							
Rheotanytarsus		19				19	
Tanytarsus							
Oligochaeta							
Enchytraeidae		169	150	132			
Chaetogaster sp.							
Nais spp.			56	169	226		
Nais elinguis		207	244				
Limnodrilus hoffmeisteri							
Immature Tubificidae w/o capilliform chaetae							
Immature Tubificidae w/ capilliform chaetae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Station 5 Mod. Surber A	Station 5 Mod. Surber B	Station 5 Mod. Surber C	Station 6 Dry
Tricladida					
Nematoda		19		56	
Physa		19	56		
Acari					
Hyallela azteca		320	526	207	
Baetidae		19	38		
Baetis					
Argia			150		
Enallagma			19		
Plecoptera					
Oreodytes					
Hydropsychidae		38			
Hydroptila		244	432	564	
Limnephilidae					
Hesperophylax					
Tipulidae					
Holorusia		19			
Antocha					
Dicranota					
Limnophila					
Ormosia					
Pericoma					
Ceratopogonidae		545	414	696	
Simuliidae		3384	10735	5226	
Simulium					
Simulium argus					
Simulium vittatum		19			
Euparyphus					
Chrysops					

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Station 5 A	Station 5 Mod. Surber B	Station 5 C	Station 6 Dry
Tabanus			38		
Hydrophorus					
Hemerodromia					
Chrysogaster					
Limnophora aequifrons					
Limnophora discreta					
Chironomidae					
Tanypodinae					
Ablabesmyia					
Conchapelopia		19	19	38	
Procladius s.s.					
Psectrotanypus (Macropelopia)					
Diamesinae					
Diamesa		113	320	38	
Monodiamesa					
Odontomesa					
Prodiamesa near olivacea					
Prodiamesa sp. 1					
Orthocladiinae					
Orthocladiinae sp. 1					
Orthocladiinae sp. 2					
Orthocladiinae sp. 3					
Cardiocladius					
Chaetocladius sp. 1		19			
Chaetocladius sp. 2					
Cricotopus bicinctus		19	56		
Cricotopus c.f. trifacia				150	
Cricotopus spp.					
Corynoneura					
Eukiefferiella				19	

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Station 5 Mod. Surber A	B	C	6 Dry
Orthocladius spp.		620	432	921	
Parakiefferiella					
Parametriocnemus					
Pseudosmittia					
Thienemanniella					
Chironominae					
Chironomini					
Chironomus					
Cryptochironomus					
Dicrotendipes					
Microtendipes					
Paracladopelma					
Paratendipes					
Phaenopsectra (Phaenopsectra)					
Phaenopsectra (Tribelos)					
Polypedilum s.s. fallax group					
Polypedilum "Tripodura" group					
Pseudochironomus					
Stictochironomous					
Tanytarsini					
Cladotanytarsus					
Micropsectra		244	470	357	
Paratanytarsus			19		
Rheotanytarsus					
Tanytarsus			19		
Oligochaeta					
Enchytraeidae					
Haplotaxidae					
Naidiae					

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Station 5 Mod. Surber A	B	C	6 Dry
Chaetogaster sp.					
Chaetogaster diastrophus					
Nais spp.				75	
Nais elinguis					
Nais c.f. behningi					
Pristina					
Tubificidae					
Ilyodrilus templetoni		132			
Limnodrilus claparedeianus					
Limnodrilus hoffmeisteri		19			
Limnodrilus udekeminaus				38	
Tubifex sp.		19			
Immature Tubifficidae w/o capilliform chaetae		207		188	
Immature Tubificidae w/ capilliform chaetae		714		338	
Rhyacordilinae				19	

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 9 A	9 Mod. Surber B	9 C	10 Dry	11 Dry	12 Dry
Nematoda			19	94			
Physa							
Acari							
Collembola							
Ephemeroptera							
Baetidae			19	113			
Baetis							
Callibaetis							
Epeorus							
Plecoptera		75	150	75			
Capniidae							
Capnia							
Isoperla							
Corixidae							
Cenocorixa							
Cenocorixa utahensis							
Trichoptera							
Hydropsychidae							
Hydropsyche							
Hydroptila							
Limnephilidae							
Holorusia							
Antocha							
Dicranota				19			
Ormosia		19					
Pericoma							
Ceratopogonidae			19	19			
Simuliidae		19		169			
Simulium				19			

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 9 Mod. Surber A	9 Mod. Surber B	9 Mod. Surber C	10 Dry	11 Dry	12 Dry
Simulium argus							
Simulium canadense							
Euparyphus							
Empididae							
Hemerodromia		19		19			
Limnophora aequifrons		56	38				
Limnophora discreta							
Chironomidae							
Tanypodinae							
Ablabesmyia							
Conchapelopia			19	35			
Procladius s.s.							
Psectrotanypus (Macropelopia)							
Diamesinae							
Diamesa		2170	2068	2487			
Monodiamesa							
Odontomesa							
Prodiamesa near olivacea							
Prodiamesa sp. 1							
Orthocladiinae		28	56	35			
Orthocladiinae sp. 1							
Orthocladiinae sp. 2							
Orthocladiinae sp. 3							
Cardiocladius							
Chaetocladius sp. 1			19				
Chaetocladius sp. 2		56	75	210			
Cricotopus bicinctus							
Cricotopus c.f. trifacia							
Cricotopus spp.		56		175			

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 9 Mod. Surber A	9 Mod. Surber B	9 Mod. Surber C	10 Dry	11 Dry	12 Dry
Corynoneura		56	94	175			
Eukiefferiella		334	301	210			
Orthocladius spp.							
Parakiefferiella							
Parametriocnemus							
Pseudosmittia		28	19				
Thienemanniella							
Chironominae							
Chironomini							
Chironomus							
Cryptochironomus							
Dicrotendipes							
Microtendipes							
Paracladopelma							
Paratendipes							
Phaenopsectra (Phaenopsectra)							
Phaenopsectra (Tribelos)							
Polypedilum s.s. fallax group							
Polypedilum "Tripodura" group							
Pseudochironomus							
Stictochironomous							
Tanytarsini							
Cladotanytarsus		28		35			
Micropsectra							
Paratanytarsus							
Rheotanytarsus							
Tanytarsus							
Oligochaeta		38		226			
Enchytraeidae							
Haplotaxidae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 9 Mod. Surber A	B	C	10 Dry	11 Dry	12 Dry
Naididae							
Chaetogaster sp.							
Chaetogaster diastrophus							
Nais spp.		75		508			
Nais elinguis							
Nais c.f. behningi							
Pristina							
Tubificidae							
Ilyodrilus templetoni							
Limnodrilus claparedeianus							
Limnodrilus hoffmeisteri							
Limnodrilus udekemianus							
Tubifex sp.							
Immature Tubificidae w/o capilliform chaetae							
Immature Tubificidae w/ capilliform chaetae					19		
Rhyacodrilinae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 13 Mod. Surber A	13 Mod. Surber B	13 Mod. Surber C	14 Ekman Dredge A	14 Ekman Dredge B	14 Ekman Dredge C
Nematoda		733	132	282			44
Physa							
Acari		38					
Collembola							
Ephemeroptera							
Baetidae		6279	2726	7050			
Baetis				19			
Callibaetis					2575	2398	2486
Epeorus							
Plecoptera		620	752	827			
Capniidae		38					
Capnia			19				
Isoperla					133		44
Corixidae					44		
Cenocorixa					44		
Cenocorixa utahensis				19			
Trichoptera							
Hydropsychidae			19				
Hydropsyche							
Hydroptila							
Limnephilidae							
Holorusia		19	19				
Antocha							
Dicranota							
Ormosia		19					
Pericoma		19		56			
Ceratopogonidae		19		113		89	44
Simuliidae		9851	4362	4192	311		

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 13 Mod. Surber A	13 Mod. Surber B	13 Mod. Surber C	14 Ekman Dredge A	14 Ekman Dredge B	14 Ekman Dredge C
Simulium		113	94	94			
Simulium argus		38	244	19			
Simulium canadense							
Euparyphus				19			
Empididae							
Hemerodromia							
Limnophora aequifrons		489	395	771	311	133	44
Limnophora discreta		169	113	75			
Chironomidae							
Tanypodinae					44		
Ablabesmyia							
Conchapelopia				448	44	44	178
Procladius s.s.					444	799	133
Psectrotanypus (Macropelopia)					222	311	178
Diamesinae							
Diamesa		4986	752	448	44	44	
Monodiamesa							
Odontomesa							
Prodiamesa near olivacea							
Prodiamesa sp. 1							
Orthocladiinae		3894	169	5331	44		
Orthocladiinae sp. 1							
Orthocladiinae sp. 2							
Orthocladiinae sp. 3							
Cardiocladius							
Chaetocladius sp. 1			132			44	
Chaetocladius sp. 2		3894	1335	9766	44		
Cricotopus bicinctus							
Cricotopus c.f. trifacia							
Cricotopus spp.		561	56				

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 13 Mod. Surber A	13 Mod. Surber B	13 Mod. Surber C	14 Ekman Dredge A	14 Ekman Dredge B	14 Ekman Dredge C
Corynoneura							
Eukiefferiella		1121	282	2217			
Orthocladius spp.		37701	1918	34156	44		133
Parakiefferiella					44		
Parametriocnemus							
Pseudosmittia							
Thienemanniella							
Chironominae							
Chironomini							
Chironomus							
Cryptochironomus							
Dictrotendipes							
Microtendipes							
Paracladopelma							
Paratendipes							
Phaenopsectra (Phaenopsectra)							44
Phaenopsectra (Tribelos)							
Polypedilum s.s. fallax group		2773	75	660			
Polypedilum "Tripodura" group							
Pseudochironomus							
Stictochironomous							
Tanytarsini							
Cladotanytarsus							
Micropsectra		561	75	1769	2220	3330	3019
Paratanytarsus							
Rheotanytarsus							
Tanytarsus			38		178	533	44
Oligochaeta		19			44		266
Enchytraeidae		38					

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 13 Mod. Surber A	13 Mod. Surber B	13 Mod. Surber C	14 Ekman Dredge A	14 Ekman Dredge B	14 Ekman Dredge C
Haplotaxidae							
Naididae							
Chaetogaster sp.				307			
Chaetogaster diastrophus							
Nais spp.		6016		36719	44		
Nais elinguis							
Nais c.f. behningi							
Pristina							
Tubificidae							
Ilyodrilus templetoni							
Limnodrilus claparedeianus							
Limnodrilus hoffmeisteri					307		
Limnodrilus udekemianus							
Tubifex sp.							
Immature Tubificidae w/o capilliform chaetae					307		
Immature Tubificidae w/ capilliform chaetae							
Rhyacodrilinae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 15 Dry	16 Dry	17 Dry	18 Dry
Nematoda					
Physa					
Acari					
Collembola					
Ephemeroptera					
Baetidae					
Baetis					
Callibaetis					
Epeorus					
Plecoptera					
Capniidae					
Capnia					
Isoperla					
Corixidae					
Cenocorixa					
Cenocorixa utahensis					
Trichoptera					
Hydropsychidae					
Hydropsyche					
Hydroptila					
Limnephilidae					
Holorusia					
Antocha					
Dicranota					
Ormosia					
Pericoma					
Ceratopogonidae					
Simuliidae					
Simulium					

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 15 Dry	16 Dry	17 Dry	18 Dry
Simulium argus					
Simulium canadense					
Euparyphus					
Empididae					
Hemerodromia					
Limnophora aequifrons					
Limnophora discreta					
Chironomidae					
Tanypodinae					
Ablabesmyia					
Conchapelopia					
Procladius s.s.					
Psectrotanypus (Macropelopia)					
Diamesinae					
Diamesa					
Monodiamesa					
Odontomesa					
Prodiamesa near olivacea					
Prodiamesa sp. 1					
Orthocladiinae					
Orthocladiinae sp. 1					
Orthocladiinae sp. 2					
Orthocladiinae sp. 3					
Cardiocladius					
Chaetocladius sp. 1					
Chaetocladius sp. 2					
Cricotopus bicinctus					
Cricotopus c.f. trifacia					
Cricotopus spp.					
Corynoneura					

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 15 Dry	16 Dry	17 Dry	18 Dry
Eukiefferiella					
Orthocladius spp.					
Parakiefferiella					
Parametriocnemus					
Pseudosmittia					
Thienemanniella					
Chironominae					
Chironomini					
Chironomus					
Cryptochironomus					
Dicrotendipes					
Microtendipes					
Paracladopelma					
Paratendipes					
Phaenopsectra (Phaenopsectra)					
Phaenopsectra (Tribelos)					
Polypedilum s.s. fallax group					
Polypedilum "Tripodura" group					
Pseudochironomus					
Stictochironomous					
Tanytarsini					
Cladotanytarsus					
Micropsectra					
Paratanytarsus					
Rheotanytarsus					
Tanytarsus					
Oligochaeta					
Enchytraeidae					
Haplotaxidae					
Naididae					

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 15 Dry	16 Dry	17 Dry	18 Dry
Chaetogaster sp.					
Chaetogaster diastrophus					
Nais spp.					
Nais elinguis					
Nais c.f. behningi					
Pristina					
Tubificidae					
Ilyodrilus templetoni					
Limnodrilus claparedeianus					
Limnodrilus hoffmeisteri					
Limnodrilus udekemianus					
Tubifex sp.					
Immature Tubificidae w/o capilliform chaetae					
Immature Tubificidae w/ capilliform chaetae					
Rhyacodrilinae					

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 19 Mod. Surber A	B	C	20 Mod. Surber A	B	C
Nematoda		75	169	38			
Helobdella stagnalis		38	150	56			
Acari					56		19
Hyallela azteca		94	38	56			
Collembola						19	56
Baetidae		602	226	526			
Callibaetis							19
Caenis		19					
Ephemerella							
Tricorythodes							
Coenagrionidae			19				
Amphiagrion abbreviatum			38				
Argia						75	
Gomphidae							
Plecoptera							19
Capnia							
Gerris							
Deronectes							19
Deronectes coloradensis			75				
Hydropsychidae		19				19	
Hydropsyche							
Hydroptila							
Limnephilidae		19					
Thaumaleidae			19				
Ceratopogonidae		38	263	19	19		207
Simuliidae		226	188	226	56	56	19
Simulium			132				
Simulium argus					19		
Chrysops		38	19				

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 19 Mod. Surber A	B	C	20 Mod. Surber A	B	C
Tabanus					19		
Limnophora aequifrons					38		19
Limnophora discreta							
Ablabesmyia			38				
Conchapelopia		19	113	75	56	19	
Diamesa					38	19	
Odontomesa							56
Orthocladiinae					75		150
Chaetocladius sp. 1					244	56	244
Chaetocladius sp. 2					583	113	489
Cricotopus bicinctus							
Cricotopus spp.		19			19		94
Eukiefferiella							
Orthocladius spp.		169	113	75	169	38	564
Parakiefferiella					19		
Chironomini							
Cryptochironomus			38				
Microtendipes							19
Paracladopelma							
Paratendipes		75	113	75			
Phaenopsectra (Tribelos)					19		
Polypedilum s.s. fallax group							
Polypedilum "Tripodura" group							
Pseudochironomus			19	19			
Stictochironomous							
Tanytarsini					19		
Micropsectra		19	75				132
Rheotanytarsus				19			
Tanytarsus							150

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 19 Mod. Surber A	B	C	20 Mod. Surber A	B	C
Nais spp.							
Nais elinguis			19				
Limnodrilus hoffmeisteri		94	188	19			
Limnodrilus udekemianus			56				
Immature Tubificidae w/o capilliform chaetae		1278	2613	1936	38	38	113
Immature Tubificidae w/ capilliform chaetae		1203	865	1880			

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 21 Mod. Surber A	B	C	22 Mod. Surber A	B	C
Nematoda							19
Helobdella stagnalis							
Acari				19			
Hyallela azteca						56	
Collembola				19			38
Baetidae		38		19		56	564
Callibaetis							
Caenis							
Ephemerella							19
Tricorythodes							19
Coenagrionidae					38		38
Amphiagrion abbreviatum							
Argia							
Gomphidae					19		19
Plecoptera							
Capnia						19	
Gerris		19					
Deronectes							
Deronectes coloradensis							
Hydropsychidae							
Hydropsyche		19			38		19
Hydroptila		19					
Limnephilidae							
Thaumaleidae							
Ceratopogonidae		56		226		56	752
Simuliidae		207	338	414			19
Simulium							
Simulium argus							
Chrysops							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 21 Mod. Surber A	B	C	22 Mod. Surber A	B	C
Tabanus							
Limnophora aequifrons		19		19	56	113	56
Limnophora discreta		19					
Chironomidae							
Tanypodinae							
Ablabesmyia							
Conchapelopia			19	56		19	80
Procladius s.s.							
Psectrotanypus (Macropelopia)							
Diamesinae							
Diamesa					56	75	
Monodiamesa							
Odontomesa							557
Prodiamesa near olivacea							
Prodiamesa sp. 1							
Orthocladiinae		19		56			
Orthocladiinae sp. 1							
Orthocladiinae sp. 2							
Orthocladiinae sp. 3							
Cardiocladius							
Chaetocladius sp. 1		19		332	38		
Chaetocladius sp. 2		19	19	112	19	94	160
Cricotopus bicinctus					19	38	
Cricotopus c.f. trifacia							
Cricotopus spp.		188		2432	19	19	793
Corynoneura							
Eukiefferiella				56			
Orthocladius spp.		94	451	2324	56	414	2695
Parakiefferiella						38	396

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 21 Mod. Surber A	21 Mod. Surber B	21 Mod. Surber C	22 Mod. Surber A	22 Mod. Surber B	22 Mod. Surber C
Parametriocnemus							
Pseudosmittia							
Thienemanniella							
Chironominae							
Chironomini					19		
Chironomus							80
Cryptochironomus							396
Dicrotendipes						19	80
Microtendipes							
Paracladopelma							
Paratendipes							
Phaenopsectra (Phaenopsectra)							
Phaenopsectra (Tribelos)							
Polypedilum s.s. fallax group		56					
Polypedilum "Tripodura" group						38	160
Pseudochironomus							
Stictochironomous					226	282	1270
Tanytarsini							
Cladotanytarsus							
Micropsectra						56	557
Paratanytarsus							
Rheotanytarsus							316
Tanytarsus							160
Oligochaeta							
Enchytraeidae							
Haplotaxidae							
Naididae							
Chaetogaster sp.							
Chaetogaster diastrophus							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 21 Mod. Surber A	B	C	22 Mod. Surber A	B	C
Nais spp.		94		338	2632		457745
Nais elinguis			19			1015	
Nais c.f. behningi							
Pristina							
Tubificidae							
Ilyodrilus templetoni							
Limnodrilus claparedeianus							
Limnodrilus hoffmeisteri							
Limnodrilus udekemianus							
Tubifex sp.							
Immature Tubificidae w/o capilliform chaetae					451	301	34871
Immature Tubificidae w/ capilliform chaetae					19		
Rhyacodrilinae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 23 D-Frame A	B	C	24 Mod. Surber A	B	C
Hydra							
Nematoda		1	4	1	19		
Acari		1	1				
Collembola							
Baetidae		3	8	3	113		207
Baetis		4		1	75		188
Callibaetis				1			
Heptagenia						19	19
Rhithrogena			5	6	38	19	
Choroterpes							
Paraleptophlebia							19
Traverella albertana							
Ephemerella		118	238	166	639	395	1278
Tricorythodes		13	36	21	338	94	508
Coenagrionidae							
Gomphidae		2	4	3			
Ophiogomphus severus							
Plecoptera		4	15	13	75	19	75
Isoperla							
Isogenoides				6			
Chloroperlidae							
Claassenia sabulosa							
Corixidae					19	19	
Dubiraphia							
Dubiraphia giullianii							
Microcylloepus							19
Microcylloepus pucillus							
Optioservus							
Zaitzevia parvula			1				

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 23 D-Frame A	B	C	24 Mod. Surber A	B	C
Hydropsychidae		20	103	44	94	263	301
Cheumatopsyche		6	10	11			226
Hydropsyche		11	39	36	132	132	752
Hydroptilidae							
Hydroptila		33	37	59	320	94	150
Neotrichia		1		2			19
Limnephilidae							
Oecetis			6	1			19
Pyralidae		2	3	4	19	94	75
Eriocera		6	15	13	75	19	38
Hexatoma							
Limnophila							
Ceratopogonidae		1	1			19	
Simulidae		6		3			19
Simulium							
Simulium arcticum							
Atherix variegata			2	1	19	38	38
Hemerodromia		1	2	2			
Chironomidae							
Conchapelopia			11	1	94	75	94
Psectrotanypus (Macropelopia)							
Diamesa			5				
Monodiamesa							
Odontomesa							
Orthocladiinae			1	2			
Orthocladiinae sp. 1			1				
Orthocladiinae sp. 2							
Orthocladiinae sp. 3							
Cardiocladius			3			19	

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 23 D-Frame A	B	C	24 Mod. Surber A	B	C
Chaetocladius sp. 1		1					
Chaetocladius sp. 2		1				19	
Cricotopus bicinctus							
Cricotopus c.f. trifacia		1	2	1			
Cricotopus spp.				3	19		38
Eukiefferiella		4	15	5	19		38
Orthocladius spp.		7	24	5	19	169	19
Parakiefferiella							
Pseudosmittia							
Chironomini							
Chironomus							
Cryptochironomus		1				19	
Dicrotendipes							
Microtendipes		10	31	16	470	884	1147
Paracladopelma		1	3				
Polypedilum s.s. fallax group							
Polypedilum "Tripodura" group		1					
Pseudochironomus							
Stictochironomous							
Tanytarsini					19		
Cladotanytarsus		7	11	3			
Micropsectra							
Paratanytarsus							
Rheotanytarsus		15	19	28	526	376	301
Enchytraeidae							
Chaetogaster diastrophus							
Nais spp.		2	13	6	2463	19	8855
Nais elinguis						56	
Nais c.f. behningi			1		38	470	
Pristina							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 23 D-Frame A	B	C	24 Mod. Surber A	B	C
Limnodrilus claparedeianus							
Limnodrilus hoffmeisteri							
Immature Tubificidae w/o capilliform chaetae			1		38	113	75
Immature Tubificidae w/ capilliform chaetae							
Rhyacodrilinae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 25 D-Frame A	B	C	26 D-Frame A	B	C
Hydra							
Nematoda		1			2		
Acari					1		
Collembola							
Baetidae		4	9		3	22	6
Baetis		23	17	10	4	3	4
Callibaetis							
Heptagenia		3	8	8	2	4	12
Rhithrogena		4	5			8	4
Choroterpes							
Paraleptophlebia							
Traverella albertana		2		1	1	3	3
Ephemerella		41	46	22	24	11	24
Tricorythodes		2	2	4	20	4	10
Coenagrionidae							
Gomphidae				1			1
Ophiogomphus severus		1	1				
Plecoptera		4	8	4	4	10	10
Isoperla							
Isogenoides		1					
Chloroperlidae							
Claassenia sabulosa							
Corixidae							
Dubiraphia							
Dubiraphia giullianii							
Microcylloepus							
Microcylloepus giullianii				1			
Optioservus		1					
Zaitzevia parvula							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 25 D-Frame A	25 D-Frame B	25 D-Frame C	26 D-Frame A	26 D-Frame B	26 D-Frame C
Hydropsychidae		41	54	1	27	88	42
Cheumatopsyche		1		2	7		20
Hydropsyche		54	45	7	41	49	90
Hydroptilidae							
Hydroptila		3	4	2	16	6	7
Neotrichia		4	1				1
Limnephilidae							
Oecetis			1				1
Pyralidae		8	4	7	2	3	2
Eriocera		4		1			
Hexatoma							
Limnophila							
Ceratopogonidae					1		
Simuliidae		2	1				1
Simulium							
Simulium arcticum			2				1
Atherix variegata		1	3				2
Hemerodromia		2					1
Chironomidae							
Tanypodinae							
Ablabesmyia							
Conchapelopia			3		15		10
Procladius s.s.							
Psectrotanypus (Macropelopia)							
Diamesinae							
Diamesa							
Monodiamesa							
Odontomesa							
Prodiamesa near olivacea							
Prodiamesa sp. 1							
Orthocladiinae							
Orthocladiinae sp. 1							

APPENDIX A-1?-2 (Continued)

Taxon	Sampling Method	Stations 25 D-Frame A	B	C	26 D-Frame A	B	C
Orthocladiinae sp. 2							
Orthocladiinae sp. 3							
Cardiocladius							
Chaetocladius sp. 1							
Chaetocladius sp. 2							1
Cricotopus bicinctus							
Cricotopus c.f. trifacia				1			1
Cricotopus spp.					4		
Corynoneura							
Eukiefferiella		7	3		8	1	1
Orthocladius spp.			2			1	
Parakiefferiella							
Parametriocnemus							
Pseudosmittia							
Thienemanniella							
Chironominae							
Chironomini					8		
Chironomus							
Cryptochironomus							
Dicrotendipes							
Microtendipes		5	4	3	30	3	18
Paracladopelma							
Paratendipes							
Phaenopsectra (Phaenopsectra)							
Phaenopsectra (Tribelos)							
Polypedilum s.s. fallax group							
Polypedilum "Tripodura" group							
Pseudochironomus							
Stictochironomous							
Tanytarsini							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 25 D-Frame A	B	C	26 D-Frame A	B	C
Cladotanytarsus		2					
Micropsectra							
Paratanytarsus							
Rheotanytarsus		4	1	1	11	2	4
Tanytarsus							
Oligochaeta							
Enchytraeidae						1	
Haplotaxidae							
Naididae							
Chaetogaster sp.							
Chaetogaster diastrophus							
Nais spp.		9			13		15
Nais elinguis						6	
Nais c.f. behningi			7			3	
Pristina							
Tubificidae							
Ilyodrilus templetoni							
Limnodrilus claparedeianus							
Limnodrilus hoffmeisteri							
Limnodrilus udekemianus							
Tubifex sp.							
Immature Tubificidae w/o capilliform chaetae					1		1
Immature Tubificidae w/ capilliform chaetae		1					
Rhyacodrilinae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 27 Mod. Surber A	B	C	28 Mod. Surber A	B	C
Hydra						19	
Nematoda		19				75	19
Acari							
Collembola							
Baetidae		19	56	38	38	263	
Baetis			19	56	414	395	244
Callibaetis							
Heptagenia		38					
Rhithrogena		38			169	620	56
Choroterpes			19				
Paraleptophlebia							
Traverella albertana			19				
Ephemerella		188	75	132	207	94	38
Tricorythodes		150	132	226			38
Coenagrionidae							
Gomphidae							
Ophiogomphus severus							
Plecoptera		38	56	19	3121	1692	978
Isoperla							
Isogenoides							
Chloroperlidae							
Claassenia sabulosa							
Corixidae							
Dubiraphia							
Dubiraphia giullianii				19			
Microcylloepus							
Microcylloepus pucillus							
Optioservus							
Zaitzevia parvula							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 27 Mod. Surber A	27 Mod. Surber B	27 Mod. Surber C	28 Mod. Surber A	28 Mod. Surber B	28 Mod. Surber C
Hydropsychidae		38	56	38		75	
Cheumatopsyche							
Hydropsyche			19	38		19	19
Hydroptilidae							
Hydroptila		75	75	132			
Neotrichia						19	
Limnephilidae			19				
Oecetis							
Pyralidae		19					
Eriocera							
Hexatoma							38
Limnophila					19		
Ceratopogonidae					56	56	38
Simuliidae			19		19		
Simulium							
Simulium arcticum							
Atherix variegata							
Hemerodromia							19
Chironomidae					19		
Tanypodinae							
Ablabesmyia							
Conchapelopia		38	132	150	38	38	38
Procladius s.s.							
Psectrotanypus (Macropelopia)							38
Diamesinae							
Diamesa							
Monodiamesa					38		56
Odontomesa					56		56
Prodiamesa near olivacea							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 27 Mod. Surber A	27 Mod. Surber B	27 Mod. Surber C	28 Mod. Surber A	28 Mod. Surber B	28 Mod. Surber C
Prodiamesa sp. 1							
Orthocladiinae				19	75		38
Orthocladiinae sp. 1						19	19
Orthocladiinae sp. 2							
Orthocladiinae sp. 3							
Cardiocladius							
Chaetocladius sp. 1					75		
Chaetocladius sp. 2					19	75	
Cricotopus bicinctus						38	19
Cricotopus c.f. trifacia				19			
Cricotopus spp.				19			
Corynoneura							
Eukiefferiella					19		
Orthocladius spp.		38	75	169	226	75	338
Parakiefferiella		19	19				
Parametriocnemus							
Pseudosmittia							
Thienemanniella							
Chironominae							
Chironomini							
Chironomus					19		
Cryptochironomus		38	19			19	19
Dicrotendipes					38		
Microtendipes		489	357	489		38	19
Paracladopelma							
Paratendipes							
Phaenopsectra (Phaenopsectra)							
Phaenopsectra (Tribelos)							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 27 Mod. Surber A	27 Mod. Surber B	27 Mod. Surber C	28 Mod. Surber A	28 Mod. Surber B	28 Mod. Surber C
Polypedilum s.s. fallax group							
Polypedilum "Tripodura" group		38					19
Pseudochironomus							
Stictochironomous		19					38
Tanytarsini					19		
Cladotanytarsus							
Micropsectra					19		
Paratanytarsus							
Rheotanytarsus		226	75	113	113	38	75
Tanytarsus							
Oligochaeta							
Enchytraeidae							
Haplotaxidae							
Naididae							
Chaetogaster sp.							
Chaetogaster diastrophus						19	
Nais spp.		226	113	301	5866	56	
Nais elinguis						6467	564
Nais c.f. behningi							
Pristina					19		
Tubificidae							
Ilyodrilus templetoni							
Limnodrilus claparedeianus							
Limnodrilus hoffmeisteri			19				
Limnodrilus udekemianus							
Tubifex sp.							
Immature Tubificidae w/o capilliform chaetae		38	56		94	207	19
Immature Tubificidae w/ capilliform chaetae					38	94	
Rhyacodrilinae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 29 Mod. Surber A	B	C	30 D-Frame A	B	C
Hydra							
Nematoda			19	338		4	
Acari		38		19		2	
Collembola							
Baetidae		169	207	658	1	2	4
Baetis		150	75	207		2	1
Callibaetis							
Heptagenia			19			2	1
Rhithrogenia		301	1128	489			
Choroterpes							
Paraleptophlebia							
Traverella albertana							
Ephemerella			38	38	21	46	46
Tricorythodes		19			6	17	18
Coenagrionidae		19					
Gomphidae							
Ophiogomphus severus						1	
Plecoptera		94	226	132	2	2	2
Isoperla			56				
Isogenoides		19					
Chloroperlidae			19				
Claassenia sabulosa			132				
Corixidae							
Dubiraphia							
Dubiraphia giullianii							
Microcylloepus				19		1	
Microcylloepus pucillus							
Optioservus							
Zaitzevia parvula							
Hydropsychidae		865	1222	1184	4	32	18

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 29 Mod. Surber A	B	C	30 D-Frame A	B	C
Cheumatopsyche					1		15
Hydropsyche		752	752	1109	9	27	38
Hydroptilidae							
Hydroptila					16	20	18
Neotrichia				38			
Limnephilidae							
Oecetis							
Pyralidae		19		19		2	3
Eriocera		19	56		2		1
Hexatoma							
Limnophila							
Ceratopogonidae			19	19	1	5	5
Simulidae		56	150	263	1		2
Simulium			19				
Simulium arcticum				75		1	
Atherix variegata				19			2
Hemerodromia		38		38			1
Chironomidae							
Tanypodinae							
Ablabesmyia							
Conchapelopia			19	19		23	24
Procladius s.s.							
Psectrotanypus (Macropelopia)							
Diamesinae							
Diamesa							
Monodiamesa							
Odontomesa							
Prodiamesa near olivacea							
Prodiamesa sp. 1							
Orthocladiinae		19	19	19	4	3	8

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 29 Mod. Surber A	B	C	30 D-Frame A	B	C
Orthocladiinae sp. 1			19	19			
Orthocladiinae sp. 2				19			
Orthocladiinae sp. 3							
Cardiocladius							
Chaetocladius sp. 1						1	8
Chaetocladius sp. 2						1	
Cricotopus bicinctus							
Cricotopus c.f. trifacia			56	19		1	
Cricotopus spp.							
Corynoneura							
Eukiefferiella		19	19	188	4	1	8
Orthocladius spp.		38	113	150	8	18	8
Parakiefferiella						9	16
Parametriocnemus							
Pseudosmittia		19	19	19			
Thienemanniella							
Chironominae							
Chironomini							
Chironomus							
Cryptochironomus						1	
Dicrotendipes							
Microtendipes					87	138	87
Paracladopelma							
Paratendipes							
Phaenopsectra (Phaenopsectra)							
Phaenopsectra (Tribelos)							
Polypedilum s.s. fallax group						1	
Polypedilum "Tripodura" group		19				1	
Pseudochironomus			1				
Stictochironomous							
Tanytarsini							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 29 Mod. Surber A	B	C	30 D-Frame A	B	C
Cladotanytarsus							
Micropsectra					4		
Paratanytarsus							
Rheotanytarsus		56	38		32	69	142
Tanytarsus							
Oligochaeta							
Enchytraeidae							
Haplotaxidae							
Naididae							
Chaetogaster sp.							
Chaetogaster diastrophus							
Nais spp.		376	94	414	20	34	131
Nais elinguis						3	
Nais c.f. behningi			38		9		
Pristina							
Tubificidae							
Ilyodrilus templetoni							
Limnodrilus claparedeianus							
Limnodrilus hoffmeisteri						1	
Limnodrilus udekemianus							
Tubifex sp.							
Immature Tubificidae w/o capilliform chaetae		94		94	7	4	
Immature Tubificidae w/ capilliform chaetae			150	19			
Rhyacodrilinae					1		

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 31 D-Frame A	31 D-Frame B	31 D-Frame C	32 D-Frame A	32 D-Frame B	32 D-Frame C
Hydra							
Nematoda			2		2	1	
Acari							
Collembola							
Baetidae		1		1	25	18	19
Baetis		27	34	48	8	6	14
Callibaetis							
Heptagenia				1	7	5	3
Rhithrogena		4	5	2	4	2	3
Choroterpes					1		
Paraleptophlebia		1			1		
Traverella albertana		1	2	1	1		
Ephemerella		28	25	37	5	2	7
Tricorythodes		14	5	1	8	6	6
Coenagrionidae		1					
Gomphidae			3	1			
Ophiogomphus severus					2		
Plecoptera		3	4	1	23	11	17
Isoperla							
Isogenoides							2
Chloroperlidae							
Claassenia sabulosa							
Corixidae							1
Dubiraphia							
Dubiraphia giullianii							
Microcylloepus							
Microcylloepus pucillus							
Optioservus							
Zaitzevia parvula			1				
Hydropsychidae		102	43	46	143	120	77

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 31 D-Frame A	31 D-Frame B	31 D-Frame C	32 D-Frame A	32 D-Frame B	32 D-Frame C
Cheumatopsyche				2	4		18
Hydropsyche		37	26	29	42	103	71
Hydroptilidae							
Hydroptila		3	4	4	11	6	24
Neotrichia			2	11			
Limnephilidae							
Oecetis						1	
Pyralidae		11	22	15	5	6	19
Eriocera		5	3	5		2	
Hexatoma							
Limnophila							
Ceratopogonidae				4	1		4
Simuliidae		2			2		
Simulium			4				
Simulium arcticum			1				
Atherix variegata		2					
Hemerodromia				1		1	2
Chironomidae							
Tanypodinae							
Ablabesmyia							
Conchapelopia				2	10	6	1
Procladius s.s.							
Psectrotanypus (Macropelopia)							
Diamesinae							
Diamesa							
Monodiamesa							
Odontomesa							
Prodiamesa near olivacea							
Prodiamesa sp. 1							
Orthocladiinae					1		
Orthocladiinae sp. 1							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 31 D-Frame A	31 D-Frame B	31 D-Frame C	32 D-Frame A	32 D-Frame B	32 D-Frame C
Orthocladiinae sp. 2							
Orthocladiinae sp. 3					1		1
Cardiocladius					1	2	
Chaetocladius sp. 1					1		
Chaetocladius sp. 2							
Cricotopus bicinctus				1			
Cricotopus c.f. trifacia		2	4	5	8	7	13
Cricotopus spp.					5		11
Corynoneura							
Eukiefferiella		7	2	5	1	1	1
Orthocladius spp.		10	7	7	9	13	14
Parakiefferiella				1			1
Parametriocnemus							
Pseudosmittia							
Thienemanniella							
Chironominae							
Chironomini			1				
Chironomus							
Cryptochironomus							
Dicrotendipes							
Microtendipes		15	15	5	14	8	10
Paracladopelma							
Paratendipes							
Phaenopsectra (Phaenopsectra)							
Phaenopsectra (Tribelos)							
Polypedilum s.s. fallax group							
Polypedilum "Tripodura" group		1				1	
Pseudochironomus							
Stictochironomous				1			
Tanytarsini						1	
Cladotanytarsus		1					

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 31 D-Frame A	31 D-Frame B	31 D-Frame C	32 D-Frame A	32 D-Frame B	32 D-Frame C
Micropsectra							
Paratanytarsus							
Rheotanytarsus		6	3	5	11	6	17
Tanytarsus							
Oligochaeta							
Enchytraeidae							
Haplotaxidae							
Naididae							
Chaetogaster sp.							
Chaetogaster diastrophus							
Nais spp.		24	22	38	77	67	69
Nais elinguis							
Nais c.f. behningi				1	1		
Pristina							
Tubificidae							
Ilyodrilus templetoni							
Limnodrilus claparedeianus							
Limnodrilus hoffmeisteri							
Limnodrilus udekemianus							
Tubifex sp.							
Immature Tubificidae w/o capilliform chaetae			1		4		
Immature Tubificidae w/ capilliform chaetae					2		
Rhyacodrilinae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 33 D-Frame A	B	C	34 D-Frame A	B	C
Hydra							
Nematoda		1					
Acari							
Collembola						1	
Baetidae						1	
Baetis		4		1	17	19	18
Callibaetis							
Heptagenia			1	3			
Rhithrogenia			1	1	113	290	83
Choroterpes							
Paraleptophlebia							
Traverella albertana							
Ephemerella			9	1	6	8	8
Tricorythodes		10	18	13		1	
Coenagrionidae							
Gomphidae							
Ophiogomphus severus							
Plecoptera		2			5	14	10
Isoperla							
Isogenoides					7	11	5
Chloroperlidae							
Claassenia sabulosa						2	
Corixidae							
Dubiraphia							
Dubiraphia giullianii							
Microcylloepus							
Microcylloepus pucillus							
Optioservus							
Zaitzevia parvula							
Hydropsychidae				1			2
Cheumatopsyche							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 33 D-Frame A	33 D-Frame B	33 D-Frame C	34 D-Frame A	34 D-Frame B	34 D-Frame C
Hydropsyche				1	1	2	2
Hydroptilidae						6	
Hydroptila		3		1	2		
Neotrichia					5	19	4
Limnephilidae							
Oecetis			1				
Pyralidae			1				
Eriocera		3			6	2	7
Hexatoma							
Limnophila							
Ceratopogonidae						1	
Simuliidae					1	1	
Simulium arcticum							
Atherix variegata						1	
Hemerodromia							
Chironomidae							
Tanypodinae							
Ablabesmyia							
Conchapelopia							
Procladius s.s.							
Psectrotanypus (Macropelopia)							
Diamesinae							
Diamesa							
Monodiamesa				1			
Odontomesa							
Prodiamesa near olivacea							
Prodiamesa sp. 1							
Orthocladiinae					1		
Orthocladiinae sp. 1							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 33 D-Frame A	33 D-Frame B	33 D-Frame C	34 D-Frame A	34 D-Frame B	34 D-Frame C
Orthocladiinae sp. 2							
Orthocladiinae sp. 3							
Cardiocladius							
Chaetocladius sp. 1							
Chaetocladius sp. 2						1	
Cricotopus bicinctus						1	
Cricotopus c.f. trifacia					2		2
Cricotopus spp.							
Corynoneura							
Eukiefferiella						3	
Orthocladius spp.		3	3	2	2	4	
Parakiefferiella							
Parametriocnemus							
Pseudosmittia							
Thienemanniella						1	
Chironominae							
Chironomini				1			
Chironomus			1				
Cryptochironomus		1					
Dicrotendipes							
Microtendipes		48	70	25			1
Paracladopelma							
Paratendipes							
Phaenopsectra (Phaenopsectra)							
Phaenopsectra (Tribelos)							
Polypedilum s.s. fallax group							
Polypedilum "Tripodura" group							
Pseudochironomus							
Stictochironomous							
Tanytarsini							
Cladotanytarsus							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Stations 33 D-Frame A	33 D-Frame B	33 D-Frame C	34 D-Frame A	34 D-Frame B	34 D-Frame C
Micropsectra							
Paratanytarsus							
Rheotanytarsus		3	3	5			
Tanytarsus							
Oligochaeta							
Enchytraeidae							
Haplotaxidae							
Naididae							
Chaetogaster sp.							
Chaetogaster diastrophus							
Nais spp.		1					
Nais elinguis							
Nais c.f. behningi					1	1	1
Pristina							
Tubificidae							
Ilyodrilus templetoni							
Limnodrilus claparedeianus				1			
Limnodrilus hoffmeisteri		1	3	3			
Limnodrilus udekemianus							
Tubifix sp.							
Immature Tubificidae w/o capilliform chaetae		6	11	7			
Immature Tubificidae w/ capilliform chaetae							
Rhyacodrilinae							

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Station 35 D-Frame A	B	C
Hydra				
Nematoda				
Acari				
Collembola				
Baetidae				1
Baetis		9	12	8
Callibaetis				
Heptagenia				1
Rhithrogenia		489	315	130
Choroterpes				
Paraleptophlebia				
Traverella albertana			1	
Ephemerella		36	3	31
Tricorythodes		3		
Coenagrionidae				
Gomphidae			1	2
Ophiogomphus severus				
Plecoptera		8	1	6
Isoperla				
Isogenoides		10	16	9
Chloroperlidae				
Claassenia sabulosa		16		3
Corixidae				
Dubiraphia				
Dubiraphia giullianii				
Microcylloepus				
Microcylloepus pucillus				
Optioservus				
Zaitzevia parvula				
Hydropsychidae		3	9	7
Cheumatopsyche		2		2

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Station 35 D-Frame A	B	C
Hydropsyche		17	28	30
Hydroptilidae				
Hydroptila				
Neotrichia		6	3	9
Limnephilidae				
Oecetis				
Pyralidae		1	1	
Eriocera		5	4	2
Hexatoma				
Limnophila				
Ceratopogonidae				
Simuliidae		3	2	
Simulium		1		
Simulium arcticum				
Atherix variegata		2	2	
Hemerodromia				
Chironomidae				
Tanypodinae				
Ablabesmyia				
Conchapelopia				
Procladius s.s.				
Psectrotanypus (Macropelopia)				
Diamesinae				
Diamesa				
Monodiamesa				
Odontomesa				
Prodiamesa near olivacea				
Prodiamesa sp. 1				
Orthocladiinae				
Orthocladiinae sp. 1				1
Orthocladiinae sp. 2				
Orthocladiinae sp. 3				

APPENDIX A-10-2 (Continued)

Taxon	Sampling Method	Station 35 D-Frame A	B	C
Cardiocladius				
Chaetocladius sp. 1				
Chaetocladius sp. 2				
Cricotopus bicinctus				
Cricotopus c.f. trifacia		1		1
Cricotopus spp.				
Corynoneura				
Eukiefferiella		3	2	1
Orthocladius spp.		1	2	
Parakiefferiella				
Parametriocnemus				
Pseudosmittia				
Thienemanniella				
Chironominae				
Chironomini				
Chironomus				
Cryptochironomus				
Dicrotendipes				
Microtendipes			1	
Paracladopelma				
Paratendipes				
Phaenopsectra (Phaenopsectra)				
Phaenopsectra (Tribelos)				
Polypedilum s.s. fallax group				
Polypedilum "Tripodura" group				
Pseudochironomus				
Stictochironomous				
Tanytarsini				
Cladotanytarsus				
Micropsectra				
Paratanytarsus				

APPENDIX A-10-2 (Continued)

Taxon	Station 35 D-Frame A	B	C
Rheotanytarsus			1
Tanytarsus			
Oligochaeta			
Enchytraeidae			
Haplotaxidae			
Naididae			
Chaetogaster sp.			
Chaetogaster diastrophus			
Nais spp.			
Nais elinguis			
Nais c.f. behningi	1		
Pristina			
Tubificidae			
Ilyodrilus templetoni			
Limnodrilus claparedeianus			
Limnodrilus hoffmeisteri			
Limnodrilus udekemianus			
Tubifex sp.			
Immature Tubificidae w/o capilliform chaetae			1
Immature Tubificidae w/ capilliform chaetae			
Rhyacodrilinae			

APPENDIX A-10-3

DRIFT MACROBENTHOS OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES
OCTOBER - NOVEMBER 1974
(Organisms/M^3. Data were obtained from Zooplankton collections.)

APPENDIX A-10-3 (Continued)

	STATION / REPLICATE					
	1		2		3	
	A	B	A	B	A	B
Nematoda				24		48
Oligochaeta				108		1968
Arthropoda						
Insecta						
Diptera						
Chironomidae	3080	2496	413	336	24	576
Simuliidae	12	48				
Ephemeroptera		888		24		
Plecoptera		312		12		
Tipulidae				12		

APPENDIX A-10-3(Continued)

	STATION REPLICATE					
	4		5		6	
	A	B	A	B	A	B
Oligochaeta		2244		12	Dry	
Arthropoda						
Insecta						
Diptera						
Chironomidae	4720	72	1687	564		
Simulidae	59	12	318	36		
Plecoptera		12		12		
Trichoptera				12		

APPENDIX A-10-3(Continued)

	STATION / REPLICATE					
	7		8		9	
	A	B	A	B	A	B
Nematoda					12	24
Oligochaeta	168	21	224	60	2218	696
Arthropoda						
Insecta						
Collembola	24	12			24	12
Diptera						
Chironomidae	144	156	224	60	1865	360
Simuliidae		24	12	12		12
Ephemeroptera		168		24		24
Plecoptera						
Ephermeroptera & Plecoptera	156		236		47	

APPENDIX A-10-3(Continued)

STATION	10		11		12	
REPLICATE	A	B	A	B	A	B
	Dry		Dry		Dry	

APPENDIX A-10-3 (Continued)

	STATION					
	REPLICATE					
	13		14		15	
	A	B	A	B	A	B
Oligochaeta	Dry		165	120	Dry	
Arthropoda						
Insecta						
Diptera						
Chironomidae			272	204		
Simuliidae			24	12		
Ephemeroptera				780		
Plecoptera						
Ephemeroptera & Plecoptera			1062			

APPENDIX A-10-3(Continued)

STATION	16		17		18	
REPLICATE	A	B	A	B	A	B
	Dry		Dry		Dry	

APPENDIX A-10-3(Continued)

	STATION REPLICATE					
	19		20		21	
	A	B	A	B	A	B
Nematoda		24		12		12
Oligochaeta	71	108				84
Arthropoda						
Insecta						
Collembola		12			24	
Chironomidae	12	348	83	144	330	1356
Simuliidae		72				24
Ephemeroptera		14640		60		
Plecoptera						24
Ephmeroptera & Plecoptera	307		35		12	

APPENDIX A-10-3(Continued)

	STATION REPLICATE					
	22		23		24	
	A	B	A	B	A	B
Nematoda		12				
Oligochaeta	24	144	40	10		
Arthropoda						
Insecta						
Diptera						
Chironomidae	649	468	20	20	40	20
Simuliidae				10		
Ephemeroptera						10
Plecoptera		12				
Zygoptera		12				
Ephemeroptera & Plecoptera	12		30		10	

APPENDIX A-10-3(Continued)

	STATION / REPLICATE					
	25		26		27	
	A	B	A	B	A	B
Oligochaeta		10			20	10
Arthropoda						
Insecta						
Diptera						
Chironomidae				10		
Ephemeroptera						10
Plecoptera						10
Ephermeroptera & Plecoptera					10	

APPENDIX A-10-3(Continued)

	STATION 28 REPLICATE A	STATION 28 REPLICATE B	STATION 29 REPLICATE A	STATION 29 REPLICATE B	STATION 30 REPLICATE A	STATION 30 REPLICATE B
Nematoda	10					
Oligochaeta	50	50		70	10	20
Arthropoda						
Insecta						
Chironomidae	30	10		40	10	10
Simuliidae	10					
Ephemeroptera						
Plecoptera						
Ephemeroptera & Plecoptera					10	

APPENDIX A-10-3 (Continued)

	STATION REPLICATE					
	31		32		33	
	A	B	A	B	A	B
Nematoda				10		
Oligochaeta	20	20	60	10		20
Arthropoda						
Insecta						
Diptera						
Chironomidae		10	40		20	10
Ephemeroptera				10		
Plecoptera						
Ephemeroptera & Plecoptera			40			

APPENDIX A-10-3(Continued)

	STATION REPLICATE			
	34		35	
	A	B	A	B
Oligochaeta	30		10	10
Arthropoda				
Insecta				
Diptera				
Chironomidae	10	10	10	10
Simuliidae	10	10		10
Ephemeroptera				10
Plecoptera		10		10
Trichoptera	10			
Ephemeroptera & Plecoptera			10	

APPENDIX A-11-1

MACROINVERTEBRATE TAXA OBSERVED DURING RBOSP
AQUATIC BASELINE STUDIES, DECEMBER 1974 - JANUARY 1975

Nematoda

Mollusca
- Gastropoda
  - Basommatophora
    - Physidae
      - Physa Draparnaud
    - Limnaeidae
      - Limnaea Lamarck

Annelida
- Hirudinea
  - Rhyncobdellida
    - Glossiphoniidae
      - Helobdella stagnalis (Linnaeus)
- Oligochaeta

Arthropoda
- Arachnoidea
  - Acari
- Crustacea
  - Amphipoda
    - Talitridae
      - Hyallela azteca (Saussure)

Insecta
- Ephemeroptera
  - Siphlonuridae
    - Ameletus Eaton
  - Heptageniidae
    - Heptagenia Walsh
    - H. solitaria McDunnough
    - Rhithrogena Eaton
  - Baetidae
    - Baetis Leach
    - Callibaetis Eaton
  - Ephemerellidae
    - Ephemerella Walsh
  - Tricorythidae
    - Tricorythodes Ulmer

Odonata
- Zygoptera
  - Coenagrionidae
    - Amphiagrion abbreviatum (Selys)
    - Ischnura Charpentier
- Anisoptera
  - Gomphidae
    - Ophiogomphus severus Hagen
  - Aeshnidae
    - Aeshna interrupta Walker
  - Libellulidae
    - Sympetrum corruptum (Hagen)

Plecoptera
- Eulhognatha
  - Capniidae
    - Capnia Pictet
    - C. logana Nebeker and Gauffin
  - Taeniopterygidae
    - Brachyptera Newport
- Systellognatha
  - Perlodidae
    - Isogenoides Klapalek
    - Isoperla Banks
  - Chlorperlidae
  - Chloroperlinae
    - Alloperla Banks
  - Perlidae
    - Claassenia sabulosa (Banks)

Hemiptera
- Corixidae
  - Cenocorixa cf. bifida bifida (Hungerford)
  - Hesperocorixa laevigata (Uhler)
  - Sigara cf. lineata (Forster)
  - Trichocorixa Kirkaldy
  - T. cf. kanza Sailer
- Notonectidae
  - Notonecta Linnaeus

Coleoptera
- Haliplidae
  - Haliplus Latrielle

- Dytiscidae
  - Agabus leach
  - Deronectes coloradensis (Fall)
  - Dytiscus marginicollis LeConte
  - Hydrovatus Motschulsky
  - Rhantus Dejean
  - F. cf. mexicanus (Laporte)
- Elmidae
  - Dubiraphia Sanderson
  - Microcylloepus Hinton
  - Zaitzevia Champion

Trichoptera

- Glossosomatidae
  - Agapetus Curtis
- Hydropsychidae
  - Cheumatopsyche Wallengren
  - Hydropsyche Pictet
- Hydroptilidae
  - Hydroptila Dalman
  - Neotrichia Morton
- Limnephilidae
  - Grammotaulius Kolenati
  - Hesperophylax Banks
- Leptoceridae
  - Oecetis McLachlan

Lepidoptera

- Pyralididae

Diptera

- Tipulidae
  - Dicranota Zetterstedt
  - Eriocera Macquart
  - Holorusia Loew
  - Limonia Meigen
- Ptychopteridae
  - Bittacomorphella Alexander
- Psychodidae
  - Pericoma Walker
- Dixidae
  - Dixa Meigen
- Ceratopogonidae
- Chironomidae
- Simulidae
  - Simulium Latreille
  - S. argus Williston
  - S. cf. griseum Coquillett

Stratiomyiidae
- Euparyphus Gerstaecker

Tabanidae
- Chrysops Meigen

Rhagionidae
- Artherix variegata Walker

Empididae
- Clinocera Meigen
- Hemerodromia Meign
- Weidemannia Zetterstedt

Ephydridae
- Ephydra

Anthomyiidae
- Limnophora aequifrons Stein
- Limnophora discreta Stein

APPENDIX A-11-2

BENTHOS (MACROINVERTEBRATES) OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, DECEMBER 1974 - JANUARY 1975

(Data are expressed as organisms/m^2 for colledtions taken with either Modified Surber Sampler or Ekman Dredge.)

APPENDIX A-11-2

Taxon	Sampling Method	Stations 1 Inaccessible	2 Inaccessible	3 Mod. Surber A	B	C
Nematoda				38		
Physa						
Hyallela azteca				470	56	
Oligochaeta				790	56	263
Baetidae				38		
Baetis						
Coenagrionidae						
Amphiagrion abbreviatum						
Plecoptera						
Capniidae						19
Capnia						
Agabus						
Rhantus						
Grammotaulius						
Hesperophylax						
Hydroptilidae						
Hydroptila						
Agapetus						
Dicranota						
Eriocera					19	
Holorusia				508	113	188
Pericoma				94		
Ceratopogonidae				75		19
Chironomidae				4456	3379	808
Simuliidae						
Simulium						
Euparyphus				38		
Clinocera						
Hemerodromia						
Wiedemannia						
Limnophora aequifrons				56		
Limnophora discreta				19		

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 4 Mod. Surber A	B	C	5 Mod. Surber A	B	C
Nematoda		357	56	38		19	
Physa						38	
Hyallela azteca					33	38	38
Oligochaeta		3478	94	169	326	19	
Baetidae		23820	9945	14777			
Baetis		3328	451	771			
Coenagrionidae					4		
Amphiagrion abbreviatum					1	244	56
Plecoptera		451	56	94			
Capniidae		38	56	207			
Capnia		38	75				
Agabus					6	19	
Rhantus					1		
Grammotaulius					3	150	38
Hesperophylax				19			
Hydroptilidae						19	75
Hydroptila				19	12	38	
Agapetus		19					
Dicranota		75	56	56			
Eriocera							
Holorusia		56		19			
Pericoma			19				
Ceratopogonidae		56		19		19	75
Chironomidae		8535	1974	1560	12	2632	3290
Simuliidae		6279	3948	3798	16		19
Simulium		56					
Euparyphus				19	3	19	19
Clinocera					26	94	
Hemerodromia				56			
Wiedemannia							94
Limnophora aequifrons		150	132	94	1	38	19
Limnophora discreta		19		19			

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 6 Dry	7 Frozen	8 Mod. Surber A	B	C
Nematoda				38		
Hyallela azteca				19		
Oligochaeta				301	1335	2482
Baetidae				15096	11355	12897
Baetis				113		
Plecoptera				846	677	19
Capniidae				188	132	320
Capnia				132		
Isoperla						
Hydrovatus					19	
Cheumatopsyche						
Hydropsyche						
Grammotaulius						
Hydroptila				169		
Dicranota				19	38	19
Holorusia						
Pericoma						
Ceratopogonidae						19
Chironomidae				733	1241	771
Simuliidae				978	790	959
Simulium argus						
Euparyphus				19		
Hemerodromia					38	
Limnophora aequifrons				56	169	75
Limnophora discreta				132	188	94

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 9 Mod. Surber A	B	C	10 Dry	11 Dry	12 Dry
Nematoda							
Hyallela azteca							
Oligochaeta		113	564	94			
Baetidae		526	639	846			
Baetis		38	132	169			
Plecoptera				75			
Capniidae			169	56			
Capnia							
Isoperla							
Hydrovatus							
Cheumatopsyche							
Hydropsyche							
Grammotaulius							
Hydroptila							
Dicranota							
Holorusia							
Pericoma							
Ceratopogonidae			19				
Chironomidae		2087	5941	1936			
Simuliidae			19				
Simulium argus							
Euparyphus							
Hemerodromia		19					
Limnophora aequifrons			19				
Limnophora discreta			19	19			

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 13 Mod. Surber A	B	C	14 Frozen	15 Frozen	16 Dry
Nematoda		545	451	752			
Hyallela azteca		6693	5866	7915			
Oligochaeta		5903	15247	12728			
Baetidae		1147	771	75			
Baetis				1278			
Plecoptera							
Capniidae		714	1316				
Capnia		188	526	56			
Isoperla		132	263				
Hydrovatus							
Cheumatopsyche				38			
Hydropsyche		19		38			
Grammotaulius			19				
Hydroptila			19				
Dicranota		75					
Holorusia		113	207	169			
Pericoma		19	56	19			
Ceratopogonidae			19	75			
Chironomidae		20718	12840	20398			
Simuliidae		6336	29836	9814			
Simulium argus		56	19				
Euparyphus		19	38	19			
Hemerodromia				19			
Limnophora aequifrons		733	902	338			
Limnophora discreta		132	263	56			

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 17 Dry	18 Dry
Nematoda			
Hyallela azteca			
Baetidae			
Baetis			
Plecoptera			
Capniidae			
Capnia			
Isoperla			
Hydrovatus			
Cheumatopsyche			
Hydropsyche			
Grammotaulius			
Hydroptila			
Dicranota			
Holorusia			
Pericoma			
Ceratopogonidae			
Simuliidae			
Simulium argus			
Euparyphus			
Hemerodromia			
Limnophora aequifrons			
Limnophora discreta			

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 19 Mod. Surber A	19 Mod. Surber B	19 Mod. Surber C	20 Frozen	21 Frozen	22 Frozen
Nematoda		2331	169	395			
Helobdella stagnalis		226	169	75			
Acari		56	38				
Hyallela azteca		169	169	150			
Oligochaeta		9438	526	3346			
Baetidae				19			
Haliplus			38				
Deronectes		19	19				
Hydropsychidae		38					
Hydropsyche		38					
Hydroptila			75				
Ceratopogonidae		2519	2651	489			
Chironomidae		92045	57284	9080			
Simuliidae		13254	11073	10190			
Chrysops		19					
Limnophora aequifrons		94	132	132			

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations			
		23	24		
		Frozen	D-Frame		
			A	B	C
Nematoda			1	3	
Physa					1
Oligochaeta			178	726	83
Acari					1
Baetidae			5	31	21
Ameletus					
Baetis			9	22	16
Callibaetis					
Heptagenia					1
Rhithrogena					13
Ephemerella			56	136	70
Tricorythodes			10	33	5
Coenagrionidae				1	1
Gomphidae					
Ophiogomphus severus					
Plecoptera					
Capniidae				23	34
Capnia			18	6	
Brachyptera			1		4
Perlodidae					
Isoperla				2	17
Isogenoides					
Claassenia sabulosa					
Corixidae				1	
Trichocoriza			1		
Dubiraphia			2	1	
Microcylloepus				2	1
Zaitzevia					
Hydropsychidae			1	5	8
Cheumatopsyche			2	39	

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 23 Frozen	24 D-Frame A	24 D-Frame B	24 D-Frame C
Hydropsyche			4	84	14
Hydroptilidae					
Hydroptila			23	98	30
Neotrichia					
Limnephilidae			1	2	1
Oecetis					
Glossomatidae					
Pyralidae			2		1
Eriocera				2	
Limonia			1		
Bittacomorphella				1	
Ceratopogonidae			6	15	4
Chironomidae			805	4242	971
Simuliidae				7	14
Simulium					
Atherix variegata					1
Hemerodromia		2		3	3

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 25 D-Frame A	25 D-Frame B	25 D-Frame C	26 D-Frame A	26 D-Frame B	26 D-Frame C
Nematoda			3		8		
Physa							
Oligochaeta		8	35	2	32	4	11
Acari					2		
Baetidae		29	43	2	28	34	33
Ameletus							1
Baetis		56	32	20	34	27	13
Callibaetis							
Heptagenia		1	3	3	6	9	6
Rhithrogena			1	7	2	9	7
Ephemerella		305	328	199	258	183	96
Tricorythodes		14	33	16	69	50	14
Coenagrionidae							
Gomphidae		1			1		1
Ophiogomphus severus		1					
Plecoptera				2			4
Capniidae		3	4	2	12	4	12
Capnia							
Brachyptera		5	4	6			
Perlodidae						1	13
Isoperla		18	19	10	13	28	
Isogenoides						2	
Claassenia sabulosa							
Corixidae			1				
Trichocorixa							
Dubiraphia							
Microcylloepus			3	1			
Zaitzevia							
Hydropsychidae		69	47	24	37	39	12
Cheumatopsyche		7	11	3	24	22	4

APPENDIX A-11-2 (Continued)

Taxon	Stations 25 D-Frame A	25 D-Frame B	25 D-Frame C	26 D-Frame A	26 D-Frame B	26 D-Frame C
Hydropsyche	51	93	27	52	53	31
Hydroptilidae		1				
Hydroptila	19	27	10	85	29	28
Neotrichia						
Limnephildae						
Oecetis		1	1			1
Glossomatidae						
Pyralidae	3	3	2	5	3	1
Eriocera	1		1			
Limonia						
Bittacomorphella						
Ceratopogonidae	1	1		2		2
Chironomidae	124	230	44	481	260	307
Simuliidae	43	15	24	1	5	5
Simulium						1
Atherix variegata		2		1	1	
Hemerodromia	1	2	1	2	3	

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 27 Frozen	28 Frozen	29 Frozen	30 Frozen	31 Frozen	32 Frozen
Nematoda							
Physa							
Acari							
Baetidae							
Ameletus							
Baetis							
Callibaetis							
Heptagenia							
Rhithrogena							
Ephemerella							
Tricorythodes							
Coenagrionidae							
Gomphidae							
Ophiogomphus severus							
Plecoptera							
Capniidae							
Capnia							
Brachyptera							
Perlodidae							
Isoperla							
Isogenoides							
Claassenia sabulosa							
Corixidae							
Trichocoriza							
Dubiraphia							
Microcylloepus							
Zaitzevia							
Hydropsychidae							
Cheumatopsyche							

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 27	28	29	30	31	32
		Frozen	Frozen	Frozen	Frozen	Frozen	Frozen
Hydropsyche							
Hydroptilidae							
Hydroptila							
Neotrichia							
Limnephilidae							
Oecetis							
Glossomatidae							
Pyralidae							
Eriocera							
Limonia							
Bittacomorphella							
Ceratopogonidae							
Simuliidae							
Simulium							
Atherix variegata							
Hemerodromia							

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations					
		33 D-Frame			34 D-Frame		
		A	B	C	A	B	C
Nematoda		10	2	1		5	6
Oligochaeta		5	11	2	14	2	
Acari							
Baetidae		10	11	4	11	2	1
Ameletus							
Baetis		17	36	5	8	19	3
Callibaetis						1	
Heptagenia					1		
Rhithrogena		5	1	2	1	9	
Ephemerella		259	206	106	100	156	19
Tricorythodes		82	59	22	6	19	5
Coenagrionidae							
Gomphidae		1			1	2	1
Ophiogomphus severus				1			1
Plecoptera							
Capniidae		2		1	4	6	
Capnia						1	
Brachyptera							
Perlodidae							
Isoperla		26	19	5	2	2	
Isogenoides			1				
Claassenia sabulosa							
Corixidae							
Trichocorixa		1					
Dubiraphia							
Microcylloepus						1	
Zaitzevia				1			
Hydropsychidae		53	55	39	4	4	3
Cheumatopsyche		18	19	14		3	3

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 33 D-Frame A	33 D-Frame B	33 D-Frame C	34 D-Frame A	34 D-Frame B	34 D-Frame C
Hydropsyche		112	153	51	10	14	15
Hydroptilidae							
Hydroptila		29	23	6	19	14	4
Neotrichia		1					
Limnephilidae							
Oecetis							
Glossomatidae		1					
Pyralidae		11	13	13	3	6	4
Eriocera		4	4	1	9	21	21
Limonia							
Bittacomorphella							
Ceratopogonidae		1	2		4		
Chironomidae		420	576	124	233	138	79
Simuliidae		4	8	1	2	11	2
Simulium					1		
Atherix variegata			2	1			
Hemerodromia		1	1	1	1	1	

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 35 D-Frame A	B	C
Nematoda		1		
Physa				
Oligochaeta		4		
Acari				
Baetidae		61	4	20
Ameletus				
Baetis		62	3	20
Callibaetis				
Heptagenia				
Rhithrogena		418	204	376
Ephemerella		254	118	95
Tricorythodes		3	2	1
Coenagrionidae				
Gomphidae				
Ophiogomphus severus				
Plecoptera				11
Capniidae		40	11	20
Capnia				
Brachyptera		9	9	9
Perlodidae				
Isoperla		48	15	18
Isogenoides		10	10	19
Claassenia sabulosa		5	2	2
Corixidae				
Trichocorixa				
Dubiraphia				
Microcylloepus		1		
Zaitzevia				
Hydropsychidae		7	15	6
Cheumatopsyche		3		9

APPENDIX A-11-2 (Continued)

Taxon	Sampling Method	Stations 35 D-Frame A	B	C
Hydropsyche		50	45	24
Hydroptilidae				
Hydroptila		2	1	1
Neotrichia			8	2
Limnephilidae				
Oecetis				
Glossomatidae				
Pyralidae			1	
Eriocera		2	7	
Limonia				
Bittacomorphella				
Ceratopogonidae				1
Chironomidae		146	59	38
Simuliidae		105	12	22
Simulium				
Atherix variegata			1	
Hemerodromia		1		

2.4.6. Sediment Chemistry

Appendix A-12-1 contains the results of chemical analysis of sediment samples obtained during October - November 1974. Appendix A-13-1 contains the results of analysis for selected herbicides in sediment samples collected during the October - November sampling period.

Appendix A-12-2 contains the results of chemical analysis of sediment samples obtained during the December 1974 - January 1975 sampling period, and Appendix A-13-2 contains the results of analysis for selected herbicides in sediment samples. Ice conditions during the sampling period generally inhibited or prohibited collection of sediment samples during the second sampling period.

APPENDIX A-12-1[1]

STATION REPLICATE	PARAMETER							
	Al	As	Pb	Hg (µg/g)	KJELDAHL N	TOTAL P	VOLATILE SOLIDS	Zn
1 A	22.3	0.01	0.05	<0.2	2.30	0.95	98.3	0.10
2 A	23.5	0.02	0.06	<0.2	1.60	0.84	85.4	0.09
3 A	17.3	0.01	0.04	0.3	1.20	1.10	110.0	0.06
4 A	16.3	<0.01	0.04	<0.2	1.00	0.94	58.9	0.06
5 A	23.4	<0.01	0.03	<0.2	0.89	0.90	56.7	0.09
7 A	17.2	<0.01	0.04	0.2	1.10	0.71	46.9	0.07
8 A	22.1	0.01	0.04	0.3	0.83	0.96	75.0	0.06
9 A	19.1	0.01	0.03	<0.2	0.73	0.88	45.3	0.06
13 A	21.1	0.01	0.05	0.2	0.75	0.86	65.4	0.09
14 A	27.3	<0.01	0.04	<0.2	1.20	0.92	88.3	0.10
19 A	21.4	<0.01	0.08	<0.2	1.10	0.91	69.6	0.09
20 A	24.3	<0.01	0.05	0.4	0.76	0.61	64.1	0.07
21 A	20.6	<0.01	0.03	0.2	1.00	0.75	42.2	0.07
22 A	21.1	<0.01	0.04	0.3	1.60	0.58	72.0	0.06
23 A	17.7	<0.01	0.04	<0.2	0.89	0.54	38.5	0.07
24 A	13.4	0.01	0.01	0.3	0.39	0.85	23.9	0.06
24 B	13.0	0.01	0.01	0.3	0.76	0.75	53.8	0.06

APPENDIX A-12-1 (Continued)

STATION REPLICATE	PARAMETER							
	Al	As	Pb	Hg (µg/g)	KJELDAHL N	TOTAL P	VOLATILE SOLIDS	Zn
25 A	20.7	0.01	0.51	3.5	0.78	1.10	57.1	0.36
25 B	17.7	0.03	1.00	8.8	1.30	0.95	58.4	0.80
26 A	15.7	<0.01	0.01	0.6	0.67	0.65	43.3	0.10
26 B	19.5	0.01	0.01	0.2	0.42	0.55	33.6	0.08
27 A	11.5	<0.01	0.06	0.4	0.24	0.63	40.2	0.10
27 B	14.7	<0.01	0.03	<0.2	0.29	0.88	34.3	0.07
28 A	16.3	<0.01	0.01	<0.2	0.67	0.85	40.0	0.07
28 B	16.0	<0.01	0.01	<0.2	0.53	0.78	44.0	0.09
29 A	17.2	0.01	0.01	0.2	0.73	0.78	55.2	0.10
29 B	18.3	<0.01	0.01	2.3	0.34	0.85	60.6	0.09
30 A	15.9	<0.01	0.01	<0.2	0.81	0.85	37.7	0.07
30 B	17.6	0.01	0.01	<0.2	0.95	0.80	42.5	0.08
31 A	3.4	<0.01	0.01	<0.2	1.90	0.93	71.0	0.04
31 B	10.3	<0.01	0.01	<0.2	2.70	0.97	78.2	0.06
32 A	16.5	0.01	0.01	<0.2	0.90	0.73	34.7	0.09
32 B	17.1	<0.01	0.01	<0.2	1.10	0.68	49.1	0.08

APPENDIX A-12-1 (Continued)

STATION REPLICATE	PARAMETER							
	Al	As	Pb	Hg (rg/g)	KJELDAHL N	TOTAL P	VOLATILE SOLIDS	Zn
33 A	15.5	<0.01	0.01	<0.2	2.50	0.85	51.9	0.08
33 B	16.4	<0.01	0.01	<0.2	1.20	0.84	59.8	0.07
34 A	17.4	<0.01	0.03	0.4	1.10	0.72	46.8	0.10
34 B	21.4	<0.01	0.05	0.3	1.50	0.79	57.1	0.12
35 A	20.5	<0.01	0.01	0.3	0.89	0.66	39.3	0.08
35 B	20.2	0.01	0.01	<0.2	0.78	0.65	53.6	0.09

[1]Stations 6,10,11,12,15,16,17, and 18 were dry

APPENDIX A-12-2

RESULTS OF SEDIMENT CHEMISTRY ANALYSIS
RBOSP AQUATIC BASELINE STUDIES
DECEMBER 1974 - JANUARY 1975

(Data are µg/g)

APPENDIX A-12-2[1]

STATION REPLICATE	PARAMETER							
	Al	As	Pb	Hg (ppb)	KJELDAHL N	TOTAL P	VOLATILE SOLIDS	Zn
3 A	3200	53	31	887	7600	818	147000	379
4 A	9200	37	28	203	1890	798	67600	47
5 A	12200	26	16	104	1920	657	70500	51
8 A	11200	26	26	27	824	622	44800	54
9 A	7700	35	56	263	1810	630	51600	42
13 A	13800	36	35	392	1490	450	57300	86
14 A	19600	30	33	268	1640	763	69800	66
19 A	12500	11	23	389	1690	602	73400	52
22 A	6800	13	14	1240	329	497	21600	28
23 A	4100	2	11	121	170	414	9300	21
28 A	10000	20	22	500	966	558	42800	44
34 A	4500	6	14	488	677	445	17700	28

[1]Stations 1,2,6,7,10-12,15-18,20,21,24-27,29-33, and 35 were either inaccessible, dry or frozen solid so that no samples could be obtained.

APPENDIX A-13-1

RESULTS OF SEDIMENT HERBICIDE ANALYSIS RBOSP AQUATIC BASELINE STUDIES, OCTOBER - NOVEMBER, 1974
(Data are µg/g)

APPENDIX A-13-1

Station	Parameter	
	Tordon 22K	Silvex
1-A	< 1	< 0.1
2-A	< 1	< 0.1
3-A	< 1	< 0.1
4-A	< 1	< 0.1
5-A	< 1	< 0.1
7-A	1	< 0.1
8-A	< 1	< 0.1
9-A	< 1	< 0.1
13-A	< 1	< 0.1
14-A	< 1	< 0.1
19-A	1	< 0.1
20-A	1	< 0.1
21-A	1	< 0.1
22-A	< 1	< 0.1
23-A	< 1	< 0.1
24-A	2	< 0.1
24-B	2	< 0.1
25-A	< 1	< 0.1
26-A	< 1	< 0.1
26-B	1	< 0.1
27-A	< 1	< 0.1
27-B	< 1	< 0.1
28-A	2	< 0.1
28-B	2	< 0.1
29-A	< 1	< 0.1
30-A	< 1	< 0.1
30-B	1	< 0.1
31-A	< 1	< 0.1
31-B	< 1	< 0.1
32-A	2	< 0.1
32-B	2	< 0.1
33-A	< 1	< 0.1
33-B	< 1	< 0.1
34-A	< 1	< 0.1
34-B	< 1	< 0.1
35-A	1	< 0.1
35-B	1	< 0.1

APPENDIX A-13-2

RESULTS OF SEDIMENT HERBICIDE ANALYSIS RBOSP AQUATIC BASELINE STUDIES, DECEMBER 1974 - JANUARY 1975

(Data are µg/g)

APPENDIX A-13-2

Station Replicate	Parameter
	Tordon 22K
3-A	1.8
4-A	0.4
5-A	0.5
8-A	0.6
9-A	0.6
13-A	0.3
14-A	0.5
19-A	0.4
22-A	0.4
23-A	0.4
28-A	0.4
34-A	0.4

2.4.7. Macrophytes

2.4.7.2. Methods

Macrophyte samples are collected every two months using a random transect line system as referenced in Jessen and Lound (1962). Samples are collected simultaneously with the field collection of other biological data.

Samples were taken along randomly chosen transects that cross the streams at each station. All plants within 0.5 meter (∿1.6') upstream and downstream of the transect line were identified and sampled for voucher collection.

The areas covered by major beds of macrophytes upstream and downstream of each site were measured. This was accomplished by tape measurements made while wading in the stream. The major species in each bed was determined, and relative abundance of those species was noted.

Voucher specimens were processed and stored in the herbariun. Taxonomic references are listed at the end of this section.

2.4.7.3. Results

Aquatic macrophytes constitute an important part of the environment of many streams and lakes in Colorado. These plants provide food and cover for numerous mammals, birds, fish, reptiles, amphibians, and invertebrates. Often they are also important in soil stabilization and as a source of oxygen for aquatic life.

Aquatic macrophytes were present in few of the aquatic sampling locations during the October - November 1974 and December 1974 - January 1975 sampling periods.

During October - November, horned pond weed (Zannichellia palustris L.) was found growing at a depth of 2 ft(61 cm) along the shore of a pond at Station 14. At Station 5, specimens of marestail (Hippuris vulgaris L.) were found growing in 2 ft (61 cm) of water near the edge of a pond; in the narrow, shallow, fast-flowing stream below the pond water cress (Rorippa nasturtium-aquaticum) was also found. At Station 19, stonewort (Chara kieneri) was quite abundant in a pond area.

During the December - January sampling period, pond weed (Potamogeton cf. foliosus) and water cress (Nasturtium officionalis) were found at Station 8. At the random macrophyte sampling transect crossing the stream at Station 8, pondweed occupied an area 2 ft(61 cm) wide and approximately 3 ft(91 cm) on both the upstream and

downstream sides of the transect. At Station 5, unidentified sedges covered the bottom of the stream for several hundred feet in both the upstream and downstream directions from the sampling transect. At the sampling transect the sedges occupied an area of 19 ft (5.8 m) across the stream and approximately 3 ft (91 cm) on both the upstream and downstream sides of the transect.

2.4.8. Fish

2.4.8.2. Methods

Electrofishing was the primary sampling method. The unit consisted of a variable voltage AC/DC electrofishing unit driven by a 1500 watt alternator, and two hand held probes (+ and -). Two hundred and twenty volts AC was used at all White River stations except Station 30 where 220 DC was used.

At the White River stations, 100 foot (30.5m) sections of stream were sampled. Due to the variable nature of the substrate, depth, and flow velocity among stations, an identical approach could not be made at all stations. Depending on the character of a station, the electrofishing probes were either moved downstream toward a stationary seine (riffles), or downstream toward dip net handlers (fast runs and pools), or upstream with dip net handlers following (pools). The procedure at each station was reprated twice and the data recorded separately.

The exact sampling procedures employed at each station were:

Station 35

Electroshocked (220 V AC) downstream through 100 foot (30.5 m) section. Collected fish with dip nets. Repeated procedure for second replicate.

Station 34

Electroshocked (220 V AC) downstream through 100 foot (30.5 m) section, then halfway back upstream. Collected fish with dip nets. Repeated procedure for second replicate.

Station 34

Electroshocked (220 V AC) upstream through 100 foot (30.5 m) blocked off section. Collected fish with dip nets. Repeated procedure for secton replicate.

Station 23

Electroshocked (220 V DC) upstream through 100 foot (30.5 m) blocked off section. Collected fish with dip nets. Repeated procedure for second replicate.

Station 24

Electroshocked (220 V DC) downstream through a 100 foot (30.5 m) distance then back upstream through 100 foot (30.5 m) section. Collected fish with dip nets. Repeated procedure for second replicate.

Station 25

Electroshocked (220 V AC) downstream through a 100 foot (30.5 m) section. Collected fish with dip nets. Repeated procedure for second replicate.

Station 26

Same as Station 24 except that 229 V AC was used.

Station 29

Electroshocked (220 V AC) downstream through 100 foot (30.5 m) blocked off section. Collected fish with dip nets and 20 foot (6.1 m) bag seine. Repeated procedure for second replicate.

Station 28

Same as Station 29.

Station 27

Electroshocked (220 V AC) upstream through 100 foot (30.5 m) blocked off section, then immediately back downstream to the bottom block net; collected fish with dip nets. Repeated procedure for second replicate.

Station 32

Electroshocked (220 V AC) downstream through 100 foot (30.5 m) section. Collected fish with dip nets and 20 foot (6.1 m) bag seine. Repeated procedure for second replicate.

Station 30

Electroshocked (220 V AC) downstream through 100 foot (30.5 m) section. Collected fish with dip nets and 20 foot (6.1 m) bag seine. Second replicate electroshocked (220 V AC) (timed) upstream through 100 foot (30.5 m) section. Collected fish with dip nets.

YELLOW CREEK

Station 20

Seined with 10 foot (3 m) seine from bottom to top of a 100 foot (30.5 m) blocked off section. Repeated procedure for second replicate.

Station 21

Worked downstream with dip nets in 100 foot (30.5 m) blocked off section. Repeated procedure for second replicate.

Station 22

Same as Station 20

Sample Processing (Field)

Captured fish were held in 1/8 inch (0.3 cm) mesh "holding nets" (large fish) or buckets of water (small fish) until all sampling was completed at a station. The fish were then weighed to the nearest gram and measured to the nearest millimeter. Stomachs were excised from the larger fish (flannelmouth suckers) and placed in individual jars in 10% formalin. Smaller fishes for stomach analyses (mottled sculpin) were preserved whole in 10% formalin for laboratory processing. Most smaller fishes were preserved in 10% formalin and returned to the laboratory for stomach processing, identification, confirmation, length-weight measurements and voucher collection purposes. Scales were taken from flannelmouth suckers and placed in individual envelopes, with all appropriate data recorded on the envelopes.

Fish returned to the laboratory were weighed to the nearest 0.1 gram and measured to the nearest millimeter. Questionable identifications were checked with the aid of keys by Beckman ([1952]) and Ellis (1914). All specimens were retained for voucher purposes.

Stomachs were slit open and the contents examined under a dissecting microscope. For each stomach examined, the data recorded were: 1) estimate of % fullness of stomach, 2) number of each type of food item, 3) length and weight of specimen from which stomach was taken. Identifications of food items were made to the lowest possible taxonomic level.

Fish scales were stained with Alizarin Red S, permanently mounted on glass slides and examined under a microprojector. The criteria of Tesch (1968) were used to determine the presence of annular marks. Number of annular marks and distances from each mark to the scale focus were recorded.

2.4.8.3. Results

Fish data from the October - November 1974 sampling are presented in Appendices A-14-1 through A-14-8. No fish were collected during the second sampling period.

During the October - November 1974 sampling approximately 500 fish representing nine species were captured in the White River and lower Yellow Creek. About 60 percent of these specimens were returned to the streams, with the remainder being retained for further analysis. The major portion of the catch was composed of flannelmouth and bluehead sucker, speckled dace, fathead minnow, and mottled sculpin. The catch was thus dominated by rough and forage fishes. The catches in the White River and Yellow Creek were similar, except that suckers captured in Yellow Creek were small. Fish data from the October - November 1974 sampling are presented in Appendices A-15-1 through A-15-8.

APPENDIX A-14-1

LIST OF FISH SPECIES AND NUMBERS CAPTURED
IN THE WHITE RIVER AND LOWER YELLOW CREEK
RBOSP AQUATIC BASELINE STUDIES
OCTOBER - NOVEMBER 1974

APPENDIX A-14-1

Common Name	Scientific Name	Number Captured
Rainbow trout	Salmo gairdneri	1
Brown trout	Salmo trutta	1
Mountain whitefish	Prosopium williamsoni	7
Fathead minnow	Pimephales promelas	90
Longnose dace	Rhinichthys cataractae	4
Speckled dace	Rhinichthys osculus	122
Bluehead sucker	Catostomus discobolus	26
Flannelmouth sucker	Catostomus latipinnis	58
Mottled sculpin	Cottus bairdi	233

APPENDIX A-14-2

MEAN CONDITION FACTORS FOR THREE
SPECIES OF FISH CAPTURED IN THE WHITE RIVER
DURING RBOSP AQUATIC BASELINE STUDIES
OCTOBER - NOVEMBER 1974

APPENDIX A-14-2

Species	Number of Specimens	Length Range (mm)	Mean K_{TL}
Mottled sculpin	21	49 - 109	14.0
Flannelmouth sucker	29	50 - 491	8.6
Moutain whitefish	4	122 - 131	9.2

APPENDIX A-14-3

RESULTS OF SCALE ANALYSIS OF
FLANNELMOUTH SUCKERS TAKEN IN THE WHITE RIVER
DURING RBOSP AQUATIC STUDIES
OCTOBER - NOVEMBER 1974

APPENDIX A-14-3

Length (mm)	Weight (gm)	Age Class
116	18	0
393	561	3
396	544	3
397	554	3
389	499	3
338	320	3
423	703	3
400	522	4
415	664	4
414	617	4
373	450	4
384	479	4
470	792	4
436	759	5
491	864	5
456	755	5
395	549	5
480	974	6

APPENDIX A-14-4

SUMMARY OF STOMACH CONTENT ANALYSIS FOR
MOTTLED SCULPIN TAKEN IN THE WHITE RIVER
DURING RBOSP AQUATIC BASELINE STUDIES
OCTOBER - NOVEMBER 1974

APPENDIX A-14-4

Food Type	% Frequency of Occurrence[1]	% of Total Food Items[2]
Hydropsychidae	84	45
Baetidae	48	32
Chironomidae	48	17
Oligochaeta	12	2
Simuliidae	8	1
Ceratopogonidae	4	<1
Coenagrionidae	4	<1
Hydroptilidae	4	<1
Pyralidae	4	<1
Heptageniidae	4	<1
Tabanidae	4	<1
Coleoptera	4	<1
Fish	4	1
debris	44	-

[1] % frequency of occurrence = $\frac{\text{\# stomachs containing food item}}{\text{total \# stomachs examined}}$

[2] % of total food items = $\frac{\text{total \# of a food taxon in all stomachs}}{\text{total \# of all food items}}$

APPENDIX A-14-5

SUMMARY OF STOMACH CONTENT ANALYSIS
FOR FLANNELMOUTH SUCKERS TAKEN IN THE
DURING RBOSP AQUATIC BASELINE STUDIES
OCTOBER - NOVEMBER 1974

APPENDIX A-14-5

Food Type	% Frequency[1] of Occurrence	% of Total[2] Food Items
Plecoptera[3]	40	45
Ephemeroptera[3]	40	30
Hydropsychidae	40	4
Baetidae	40	2
Diptera[3]	20	2
Trichoptera[3]	20	1
Chironomidae	80	<1
Simuliidae	40	<1
Pyralidae	20	<1
debris	60	-

[1] % frequency of occurrence = $\frac{\text{\# stomachs containing food item}}{\text{total \# stomachs examined}}$

[2] % of total food items = $\frac{\text{total \# of a food taxon in all stomachs}}{\text{total \# of all food items}}$

[3] early instars

APPENDIX A-14-6

FISH OBSERVED IN THE WHITE RIVER AND LOWER YELLOW CREEK
RBOSP AQUATIC BASELINE STUDIES, OCTOBER - NOVEMBER 1974

Date	Station	Replicate	Species	Length (mm)	Weight (gm)
10-14-74	White River	(Qualitative near station 27)	Mottled sculpin	81	7.7
			Flannelmouth sucker	326	322
			Bluehead sucker	389	521
			"	74	3.2
			$\bar{x}$ =	232	262.1
10-14-74	White River	(Qualitative near station 27)	Longnose dace	68	3.0
			Speckled dace	45	1.0
			Mottled sculpin	109	21.2
			"	104	18.1
			"	101	17.8
			"	89	10.5
			"	84	8.7
			"	65	4.3
			"	57	2.3
			$\bar{x}$	87	11.8
			Flannelmouth sucker	482	893
			"	460	821
			"	403	541
			"	384	488
			"	373	410
			"	346	321
			"	92	7.0
			$\bar{x}$	363	497
			Speckled dace	45	1.0
			"	45	0.9
			"	40	0.6
			$\bar{x}$	43	0.8
10-30-74	20	1	Flannelmouth sucker	47	0.9
			"	46	1.1
			"	43	0.9
			"	43	0.8
			"	42	0.8
			"	40	0.6
			"	36	0.6
			"	35	0.4
			$\bar{x}$	42	0.8
			Bluehead sucker	33	0.3
10-30-74	20	2	Flannelmouth sucker	54	2.0
			"	43	0.7
			"	42	0.7
			$\bar{x}$	46	1.1
			Bluehead sucker	35	0.6

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species		Length (mm)	Weight (gm)
10-30-74	20	2	Speckled dace		45	0.9
			"		40	0.8
			"		35	0.6
				$\bar{x}$	40	0.8
			Fathead minnow		47	1.4
			"		47	1.4
			"		43	0.9
				$\bar{x}$	46	1.2
			Unidentifiable		35	0.4
10-30-74	21	1	Bluehead sucker		39	0.5
			Speckled dace		39	0.8
			"		29	0.2
				$\bar{x}$	34	0.5
			Fathead minnow		46	1.1
10-30-74	21	2	Flannelmouth sucker		53	1.4
			Bluehead sucker		38	0.5
			Speckled dace		46	1.0
			"		38	0.6
			"		38	0.5
				$\bar{x}$	41	0.1
10-29-74	22	1	Flannelmouth sucker		48	1.0
			"		41	0.7
				$\bar{x}$	45	0.9
			Bluehead sucker		42	0.8
			"		39	0.6
			"		33	0.3
			"		32	0.3
			"		28	0.1
				$\bar{x}$	35	0.4
			Speckled dace		35	0.3
			"		29	0.2
			"		27	0.2
			"		26	0.2
			"		25	0.2
				$\bar{x}$	28	0.2
10-29-74	22	2	Flannelmouth sucker		46	0.6
			"		40	0.5
			"		40	0.5
			"		38	0.5
			"		37	0.4
				$\bar{x}$	40	0.5

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species		Length (mm)	Weight (gm)
10/29/74	22	2	Bluehead sucker		38	0.5
			"		35	0.4
				$\bar{x}$	37	0.5
			Speckled dace		31	0.3
			"		18	0.1
				$\bar{x}$	25	0.2
11- 74	23	1	Flannelmouth sucker		395	549
11-74	23	2	Mottled sculpin		100	8
			"		63	2
			"		55	2
			"		51	2
				$\bar{x}$	61	2.4
			Flannelmouth sucker		109	9
			Speckled dace		41	0.7
			Brown trout		138	27
10-17-74	24	1	Mottled sculpin		92)	
			"		68)	
			"		65)	
			"		60)	
			"		60)	
			"		59)	
			"		59)	
			"		57)	31
			"		55)	
			"		53)	
			"		53)	
			"		50)	
			"		50)	
				$\bar{x}$	60	2.4
			Speckled dace		57)	
			"		49)	
			"		48)	
			"		45)	
			"		45)	
			"		45)	
			"		45)	
			"		44)	
			"		43)	17
			"		42)	
			"		42)	
			"		41)	
			"		41)	
			"		38)	
			"		34)	
				$\bar{x}$	44	1.0
			Fathead minnow		57	1.0

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species	Length (mm)	Weight (gm)
10-17-74	24	2	Mottled sculpin	66	3.6
			"	61	3.0
			"	58	2.3
			"	56	2.4
			"	56	2.1
			"	55	2.2
			"	55	2.1
			"	53	2.1
			"	53	1.8
			"	49	1.6
			$\bar{x}$	56	2.3
10-17-74	24	2	Flannelmouth sucker	50	1.2
			Speckled dace	47	1.2
			"	46	1.0
			"	46	1.0
			"	42	0.8
			"	40	0.8
			"	37	0.5
			"	35	0.5
			"	35	0.4
			"	30	0.3
			"	28	0.2
			"	27	0.2
			$\bar{x}$	37	0.6
			Fathead minnow	55	1.9
			"	55	1.7
			"	44	0.9
			"	42	0.7
			$\bar{x}$	49	1.3
10-17-74	25	1	Mottled sculpin	97)	
			"	88)	39
			"	87)	
			"	62)	
			$\bar{x}$	84	9.8
			Speckled dace	43	<1
10-17-74	25	2	Mottled sculpin	110	15.0
			"	102	5.0
			$\bar{x}$	106	5.3

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species	Length (mm)	Weight (gm)
10-17-74	26	1	Mottled sculpin	116	
			"	105	
			"	99	
			"	98	
			"	98	
			"	93	
			"	93	
			"	87	
			"	87	
			"	86	
			"	84	
			"	84	
			"	68	
			"	67	
			"	67	
			"	66	
			"	65	
			"	64	
10-17-74	26	1	Mottled sculpin	63	
			"	63	
			"	62	
			"	61	
			"	61	(total wt = 200.0)
			"	61	
			"	58	
			"	58	
			"	57	
			"	54	
			"	53	
			"	50	
			"	49	
			$\bar{x}$	73	6.3
10-17-74	26	2	Mottled sculpin	121)	
			"	83)	33.0
			"	66)	
			"	60)	
			$\bar{x}$	83	8.3
			Speckled dace	45)	
			"	41)	<1
			$\bar{x}$	43	

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species		Length (mm)	Weight (gm)
10-16-74	27	1	Mottled sculpin		101	14.3
			"		62	3.2
			"		60	2.8
			"		59	3.1
				$\bar{x}$	71	5.9
			Flannelmouth sucker		491	864
			"		64	2.1
			"		59	1.8
				$\bar{x}$	205	289.3
			Speckled dace		50	1.3
			"		44	0.9
			"		39	0.7
			"		38	0.5
			"		35	0.5
			"		33	0.5
			"		30	0.3
				$\bar{x}$	38	0.7
			Fathead minnow		58	2.4
			"		57	2.3
			"		55	1.9
			"		53	1.7
			"		50	1.7
10-16-74	27	1	Fathead minnow		49	1.5
			"		49	1.3
			"		48	1.2
			"		47	1.2
			"		46	1.0
			"		46	1.0
			"		44	1.0
			"		44	0.9
			"		44	1.1
			"		43	1.0
			"		43	1.0
			"		43	0.8
			"		42	0.9
			"		39	0.7
			"		39	0.6
			"		36	0.4
				$\bar{x}$	46	1.2

Date	Station	Replicate	Species		Length (mm)	Weight (gm)
			Mountain whitefish		131	19.8
			"		128	18
			"		127	19
			"		122	17.4
				$\bar{x}$	127	18.6
10-16-74	27	2	Mottled sculpin		90	11.4
			"		64	3.9
				$\bar{x}$	77	7.7
			Flannelmouth sucker		470	79.2
			"		58	1.9
			"		50	0.9
				$\bar{x}$	193	264.9
			Bluehead sucker		40	0.5
			Speckled dace		38	0.5
			"		37	0.6
			"		34	0.4
			"		34	0.5
			"		30	0.3
			"		28	0.2
			"		26	0.1
				$\bar{x}$	32	0.4
			Fathead minnow		48	1.4
			"		46	0.8
			"		43	0.8
			"		42	0.7
			"		40	0.7
			"		36	0.4
				$\bar{x}$	43	0.8
10-6-74	27	2	Mountain whitefish		131	19.2
			"		127	19.4
			"		123	17.1
				$\bar{x}$	127	18.6
10-16-74	28	1	Mottled sculpin		58	2.7
			"		57	2.6
				$\bar{x}$	58	2.7
			Flannelmouth sucker		59	2.0
			"		54	1.3
			"		48	0.8
			"		46	0.8
				$\bar{x}$	52	1.2

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species		Length (mm)	Weight (gm)
			Bluehead sucker		24	0.1
			Speckled dace		45	1.0
			"		43	0.9
			"		42	0.8
			"		42	0.8
			"		40	0.7
				$\bar{x}$	42	0.8
			Fathead minnow		62	2.6
			"		61	2.4
			"		48	1.2
			"		47	1.1
			"		44	1.1
			"		41	0.7
				$\bar{x}$	51	1.5
10-16-74	28	2	Mottled sculpin		69	4.8
			"		55	1.9
				$\bar{x}$	62	3.4
			Bluehead sucker		85	7.7
			Speckled dace		38	0.6
			Fathead minnow		65	3.3
			"		53	1.8
			"		53	1.7
			"		52	1.5
			"		49	1.3
			"		48	1.2
			"		48	1.2
			"		46	1.1
			"		46	1.0
			"		46	0.8
			"		45	1.1
			"		44	1.0
			"		43	0.8
			"		41	0.7
10-16-74	28	2	Fathead minnow		41	0.6
			"		37	0.5
				$\bar{x}$	47	1.2
10-16-74	28	(Qualitative)	Mottled sculpin		78	7.0
			"		64	3.4
			"		51	1.9
				$\bar{x}$	64	4.1

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species	Length (mm)	Weight (gm)
			Flannelmouth sucker	54	1.2
			Bluehead sucker	76	4.8
			"	49	1.2
			$\bar{x}$	63	3.0
			Fathead minnow	62	2.9
			"	56	1.7
			"	48	1.3
			"	48	1.2
			"	47	1.2
			"	47	1.0
			"	46	1.1
			"	45	1.0
			"	45	0.9
			"	45	0.9
			"	45	0.9
			"	44	0.9
			"	44	0.9
			"	44	0.9
			"	44	0.8
			"	44	0.8
			"	43	0.9
			"	39	0.6
			"	39	0.6
			"	39	0.5
			"	37	0.5
			$\bar{x}$	45	1.0
10-15-74	29	1	Mottled sculpin	100	15.4
			"	93	13.0
			"	88	10.9
			"	86	9.5
			"	86	9.5
			"	68	4.6
			"	64	4.3
			"	64	4.5
			"	63	3.8
			"	63	3.5
			"	62	3.7
			"	62	3.5
			"	62	4.1
			"	62	4.1

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species	Length (mm)	Weight (gm)
10-15-74	29	1	Mottled sculpin	61	3.6
			"	61	3.6
			"	61	3.5
			"	61	3.5
			"	61	3.6
			"	59	3.2
			"	58	3.8
			"	57	2.9
			"	57	2.6
			"	56	2.8
			"	56	2.8
			"	55	2.8
			"	55	2.7
			"	53	2.5
			"	52	2.5
			"	52	2.3
			"	50	2.0
			"	49	2.0
			"	49	2.0
			"	49	1.9
			"	46	1.6
			$\bar{x}$	64	4.3
			Flannelmouth sucker	50	1.4
			Speckled dace	48	1.5
			"	46	1.3
			"	44	1.1
			"	44	1.2
			"	44	1.2
			"	43	1.2
			"	42	1.0
			"	42	1.0
			"	42	0.8
			"	41	1.0
			"	41	0.9
			"	41	0.9
			"	40	1.0
			"	40	0.9
			"	39	0.9
			"	39	0.9
			"	34	0.7
			$\bar{x}$	44	1.0
			Fathead minnow	46	1.3
			Rainbow trout	421	-

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species		Length (mm)	Weight (gm)
10-15-74	29	2	Mottled sculpin		67	4.3
			"		62	3.4
			"		61	3.2
			"		61	3.1
			"		60	2.7
			"		58	2.7
			"		58	2.7
			"		58	2.4
			"		56	2.3
			"		56	2.2
			"		55	2.3
			"		55	2.3
			"		48	1.5
			"		45	1.2
				$\bar{x}$	57	2.6
			Speckled dace		45	0.9
			"		44	0.8
			"		42	0.8
			"		40	0.6
			"		39	0.6
			"		36	0.5
			"		33	0.4
			"		33	0.4
				$\bar{x}$	39	0.6
			Fathead minnow		45	0.9
10-15-74	29	Qualitative	Mottled sculpin		80	7.4
			"		62	3.5
			"		61	3.7
			"		61	3.4
			"		59	3.2
			"		58	2.8
			"		53	2.0
			"		52	2.0
				$\bar{x}$	61	3.5
			Speckled dace		49	1.3
			"		47	1.0
			"		37	1.1
			"		47	1.0
			"		46	1.2
			"		46	0.8
			"		45	0.9
			"		45	0.9
			"		44	0.9
			"		43	0.7
			"		42	0.7
			"		42	0.7
			"		41	0.7

APPENDIX A-15-6 (Continued)

Date	Station	Replicate	Species		Length (mm)	Weight (gm)
10-15-74	29	Qualitative	Speckled dace		39	0.7
			"		35	0.4
				$\bar{x}$	44	0.9
			Fathead minnow		49	1.2
10-18-74	30	1	Mottled sculpin		108	20.6
			"		102	15.6
			"		98	16.1
			"		98	14.3
			"		93	11.6
			"		91	13.3
			"		68	5.7
			"		68	4.3
			"		65	4.2
			"		62	3.5
			"		61	3.7
			"		60	3.4
			"		58	3.1
			"		54	2.3
			"		52	2.3
			"		52	2.0
			"		48	1.7
				$\bar{x}$	83	7.5
			Bluehead sucker		90	7.3
			"		88	7.4
			"		82	5.6
				$\bar{x}$	87	6.8
10-18-74	30	2	Mottled sculpin		90	11.8
			"		67	4.4
			"		65	4.0
			"		64	4.2
			"		62	3.5
			"		61	3.4
			"		58	3.0
			"		49	1.7
				$\bar{x}$	65	4.5
			Bluehead sucker		95	9.0
			"		87	7.0
				$\bar{x}$	91	8.0
			Speckled dace		48	1.2
			"		45	1.0
				$\bar{x}$	47	1.1
			Fathead minnow		54	1.9

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species		Length (mm)	Weight (gm)
10-18-74	31	1	Mottled sculpin		102)	
			"		88)	
			"		69)	
			"		67)	46
			"		66)	
			"		57)	
				$\bar{x}$	75	7.6
			Speckled dace		42	1
			Bluehead sucker		98	10
10-18-74	31	2	No fish			
10-18-74	32	1	Mottled sculpin		105	19.1
			"		90	10.8
			"		69	4.6
			"		64	3.8
			"		62	3.1
			"		55	2.4
			"		55	2.3
				$\bar{x}$	71	6.6
			Longnose dace		77	3.4
			Speckled dace		45	0.9
			"		41	0.6
			"		40	0.7
			"		39	0.6
			"		32	0.3
				$\bar{x}$	39	0.6
			Fathead minnow		50	1.4
			"		41	0.7
				$\bar{x}$	46	1.0
10-18-74	32	2	Mottled sculpin		103)	
			"		67)	
			"		64)	21
			"		61)	
				$\bar{x}$	74	5.3
			Flannelmouth sucker		59	1.7
			Bluehead sucker		85	5.7
			"		50	1.3
				$\bar{x}$	68	3.5

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species		Length (mm)	Weight (gm)
10/18/74	32	2	Speckled dace		44	-
			"		41	0.7
			"		40	0.6
			"		39	0.6
			"		37	0.5
				$\bar{x}$	40	0.6
			Fathead minnow		49	1.4
			"		48	1.3
			"		47	1.0
			"		42	-
				$\bar{x}$	47	-
10-19-74	33	1	Mottled sculpin		62)	
			"		59)	8
				$\bar{x}$	61	4
			Flannelmouth sucker		436	759
			"		423	703
			"		415	664
			"		400	522
			"		397	554
			"		396	544
			"		393	561
			"		389	499
			"		338	320
				$\bar{x}$	399	569.6
			Longnose dace		74	
10-19-74	33	2	Flannelmouth sucker		456	755
			"		373	450
			"		116	18
				$\bar{x}$	315	407.7
10-19-74	34	1	Mottled sculpin		89)	
			"		66)	
			"		64)	
			"		63)	29
			"		60)	
			"		58)	
			"		58)	
			"		57)	
			"		54)	
				$\bar{x}$	57	3.2
			Longnose dace		109	10

APPENDIX A-14-6 (Continued)

Date	Station	Replicate	Species	Length (mm)	Weight (gm)
10-19-74	34	2	Mottled sculpin	111)	
			"	50)	23
			$\bar{x}$	81	11.5
			Flannelmouth sucker	414	617
10-19-74	35	1	Mottled sculpin	107)	
			"	85)	
			"	65)	
			"	61)	36
			"	58)	
			$\bar{x}$	75	7.2
			Flannelmouth sucker	480	974
			Longnose dace	103	8.2
10-19-74	35	2	Mottled sculpin	107)	
			"	100)	
			"	98)	
			"	92)	
			"	89)	
			"	89)	87
			"	88)	
			"	70)	
			"	67)	
			"	64)	
			"	56)	
			$\bar{x}$	84	7.9
			Flannelmouth sucker	384	479

Note:) indicates fishes whose weights are combined.

APPENDIX A-14-7

COMBINED FISH MEASUREMENT DATA FOR WHITE RIVER
AND LOWER YELLOW CREEK. RBOSP AQUATIC BASELINE STUDIES
OCTOBER - NOVEMBER 1974

APPENDIX A-14-7

Species	Number	Mean Length (mm)	Length Range (mm)	Mean Weight (g)	Weight Range (g)
Mottled sculpin	233	65	45 - 121	1.2	5.0 - 21.2
Flannelmouth sucker	58	200	35 - 491	249.5	0.4 - 893
Bluehead sucker	26	52	24 - 389	23.0	0.1 - 521
Longnose dace	4	82	68 - 109	21.4	3.0 - 10
Speckled dace	122	40	26 - 57	0.8	0.1 - 1.5
Fathead minnow	90	46	36 - 65	1.2	0.4 - 3.5
Mountain whitefish	7	127	122 - 131	18.6	17.1 - 19.8
Brown trout	1	138	-	27.0	-
Rainbow trout	1	421	-	-	-

APPENDIX A-14-8

RESULTS OF FOOD HABITAT ANALYSIS
FOR INDIVIDUAL FISH
RBOSP AQUATIC BASELINE STUDIES
OCTOBER - NOVEMBER 1974

APPENDIX A-14-8

Species	Length (mm)	Weight (gm)	% Fullness[1]	Food Items #	Food Items Type
Station 18, replicate 2, 10/17/74					
Mottled sculpin	53	1.8	95	6	Chironomidae
				1	Ceratopogonidae
Mottled sculpin	58	2.3	95	6	Hydropsyche sp.
				6	Chironomidae
				1	Coenagrionidae
				1	Hydroptilidae
Mottled sculpin	66	3.6	95	1	Hydropsyche sp.
				-	Insect parts
Station 21, replicate 1, 10/16/74					
Mottled sculpin	101	14.3	85	4	Hydropsychidae
				-	Insect parts
Flannelmouth sucker	491	864.0	50	3	Simuliidae
				1	Chironomidae
				14	Hydropsychidae
Station 21, replicate 2, 10/16/74					
Mottled sculpin	90	11.4	80	2	Pyralidae
				2	Chironomidae
				4	Hydropsychidae
Flannelmouth sucker	470	792.0	33	3	Chironomidae
				20	Hydropsychidae
				2	Baetidae (1 confirmed Traverella sp.)
				1	Simuliidae

APPENDIX A-14-8 (Continued)

Species	Length (mm)	Weight (gm)	% Fullness	Food Items #	Food Items Type
				Station 23, replicate 1, 10/15/74	
Rainbow trout	421	-	30	39	Sigara sp.
				1	Notonecta sp.
				7	Baetidae
				2	Heptageniidae Stenonema sp.
				1	Formicidae
				2	Ephemeroptera (adult)
				4	Amphiagrion sp.
				1	Argia sp.
				2	Adult terrestrial insects
				-	Vegetable material, chiefly Spirogyra sp. constituted 60% of stomach contents
Mottled sculpin	93	13.0	90	10	Hydropsychidae
				-	Insect parts
Mottled sculpin	88	10.9	90	3	Hydropsychidae
				12	Baetidae (3 confirmed Baetis sp.)
				1	Chironomidae
				1	Simuliidae
Mottled sculpin	100	15.4	85	-	Insect parts, mostly Hydropsychidae

500

APPENDIX A-14-8 (Continued)

Species	Length (mm)	Weight (gm)	% Fullness	Food Items #	Food Items Type
Station 23, replicate 2, 10/15/74					
Mottled sculpin	61	3.1	100	2	Baetidae
				1	Hydropsychidae
				3	Chironomidae (2 orthocladiinae, 1 Tanytarsini)
				-	Debris
Mottled sculpin	55	2.3	100	1	Chironomidae (Tanytarsini)
				19	Baetidae (2 confirmed *Traverella*
				1	Heptageniidae
				2	Simuliidae
				3	*Hydropsyche* sp.
Mottled sculpin	45	1.2	0	-	-
Station 23, qualitatitve sample, 10/16/74					
Mottled sculpin	80	7.4	85	5	Baetidae
				3	Hydropsychidae
				1	Tabanidae
				-	Debris
Station 24, replicate 1, 10/16/74					
Mottled sculpin	91	13.3	85	1	Baetidae (*Traverella* sp.)
				12	Hydropsychidae
Mottled sculpin	108	20.6	90	11	Baetidae
				6	Hydropsychidae

APPENDIX A-14-8 (Continued)

Species	Length (mm)	Weight (gm)	% Fullness	Food Items #	Food Items Type
Station 24, replicate 1 (continued)					
Mottled sculpin	98	16.1	90	7	Hydropsychidae
				2	Baetidae
				1	Chironomidae
Mottled sculpin	98	14.1	60	8	*Hydropsyche* sp.
Mottled sculpin	93	11.6	85	5	Baetidae
				10	*Hydropsyche* sp.
				3	Chironomidae
Mottled sculpin	102	15.6	85	4	*Hydropsyche* sp.
				4	Baetidae
				-	Debris
Station 24, replicate 2, 10/16/74					
Mottled sculpin	90	11.8	85	6	Baetidae
				4	Hydropsychidae
				1	Chironomidae
				-	Insect parts
Station 26, replicate 1, 10/18/74					
Mottled sculpin	90	10.8	100	4	Hydropsychidae (1 confirmed *Hydropsyche* sp.)
				1	Chironomidae (Tanytarsini)
				1	Coleoptera
Mottled sculpin	105	19.1	100	1	Fish (constituted 99% of content)
				-	Hemiptera wings

Species	Lenght (mm)	Weight (gm)	% Fullness	Food Items #	Type	
Station 28, replicate 2, 10/19/74						
Flannelmouth sucker	414	617.0	25	117	Simuliidae	)
				3	Chironomidae	) 20%
(Specimen contained 20 Caryophyllaeus sp. tapeworms)				1	Pyralidae	)
				-	Debris	80%
Station 29, replicate 1, 10/19/74						
Flannelmouth sucker	480	974.0	50	332	Plecoptera	)
				149	Ephemeroptera	)mostly
				12	Trichoptera	) early
				21	Diptera	)instars
				-	Debris (40% of total)	
Station 29, replicate 2, 10/19/74						
Flannelmouth sucker	384	479.0	50	49	Plecoptera	)1st
				102	Ephemeroptera	)instars
(Specimen contained 21 Caryophyllaeus sp. tapeworm)				13	Baetidae (Baetis sp.)	
				1	Chironomidae	
					Debris (50% of contents)	
Qualitative sampling, upstream from station 21, 10/14/74						
Mottled sculpin	92	7.0	10	13	Chironomidae (1 was (Microtendipes sp.)	
				1	Oligochaeta	
Mottled sculpin	109	21.2	100	10	Hydropsychidae	
				2	Oligochaeta	
				-	Insect parts (80%)	

APPENDIX A-14-8 (Continued)

Species	Length (mm)	Weight (gm)	% Fullness	Food Items #	Food Items Type
Qualitative sampling, upstream from station 21 (Continued)					
Mottled sculpin	57	2.3	100	5	Baetidae
				6	Hydropsyche sp.
				5	Chironomidae
				2	Oligochaeta
				-	Insect parts (50%)
Qualitative sampling, White River near Yellow Creek, 10/14/74					
Mottled sculpin	81	7.7	85	10	Hydropsychidae
				10	Baetidae

[1] % fullness is the percent of apparently available space in the stomach (when empty) taken up by the contents.

2.4.9. Springs and seeps

Springs and seepages are studied to determine occurrence and location. Methods involve analysis of color infrared photography and field investigations. Locations of springs and seeps on or near Tract C-a are shown on Figure 3.

2.4.10. Hydrology

As indicated in Appendix A-1-1, a total of seven sampling sites were dry during the October - November 1974 sampling period. The approximate stream velocities at the other sampling stations are presented in Appendix A-15-1.

As indicated in Appendix A-1-2, a total of eleven sampling sites were inaccessible, dry or frozen solid during the December 1974 - January 1975 sampling period. The approximate stream velocities at the other sampling stations are presented in Appendix A-15-2.

Figure 2-16

ENVIRONMENTAL STUDIES FOR THE RIO BLANCO OIL SHALE PROJECT

TRACT C-a

SPRING & SEEPAGE LOCATIONS

△ springs and seepages as of 3/75

N

LIMNETICS, INC.
Denver, Colorado

3/75

MILES
0 1/2 1 2

APPENDIX A-15-1

STREAM FLOWS OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, OCTOBER-NOVEMBER 1974
(Results are expressed in feet per second, and where appropriate are given for bank sides and point of maximum flow.)

APPENDIX A-15-1[1]

Station	Flow Rate
1	0.5
2	1.4
3	0.5
4	0.9; 0.4
5	1.3
7	1.0; 0.5
8	1.0
9	1.5
13	0.5; 0.5; 0.6
14	1.3
19	2.8
20	1.7
21	0.8; 1.4; 0.2
22	1.0; 0.8; 0.2
23	2.9; 3.3; 1.4
24	1.7; 3.2; 1.2
25	1.7; 3.2; 1.2
26	1.7; 3.2; 1.2
27	0.4; 0.4; 0.6
28	1.0; 1.4; 0.5
29	3.4; 2.3
30	0.8; 2.8; 1.9
31	0.8; 2.8; 1.9
32	0.8; 2.8; 1.9
33	0.3; 1.4; 1.0
34	2.7; 3.0; 2.0
35	3.4; 4.3; 2.5

[1]Stations 6, 10-12, and 15-18 were dry at the time of sampling.

APPENDIX A-15-2

STREAM FLOWS OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, DECEMBER 1974 - JANUARY 1975
(Results are expressed in feet per second, and where appropriate are given for bank sides and point of maximum flow.)

APPENDIX A-15-2[1]

Station	Flow Rate
3	0.3
4	0.7
5	0.4
8	0.9
9	0.7
13	0.2; 0.7; 0.6
14	2.2
19	3.0; 1.0
20	1.9
21	0.3
22	1.6
23	1.4
24	2.2; 3.2
25	2.2; 3.2
26	2.2; 3.2
27	Not Determined
28	Not Determined
29	Not Determined
30	1.3; 3.6; 2.3
31	1.3; 3.6; 2.3
32	1.3; 3.6; 2.3
33	0.5
34	0.5
35	2.3; 2.9; 2.7

[1]Stations 1, 2, 6, 7, 10, 11, 12, and 15-18 were dry, frozen solid, or inaccessible due to snow accumulation at the time of sampling.

2.4.11. Statistical Methods

The preliminary statistical plan for phytoplankton, zooplankton, periphyton, benthos, water chemistry and physical characteristics includes statistical and graphic descriptions of spatial and temporal variation.

A. Biological Data

Diversity indices are computed to give a numerical approximation of the complexity or diversity of the community being sampled. The importance of diversity indices lies in the fact that low diversity is frequently associated with polluted or stressed communities whereas high diversity is often associated with stable communities.

Diversity indices measure the structure of biological communities to facilitate comparisons between communities and to monitor communities across time. One measure of community structure is the number of species present. This number is used in two ways: as a simple count of the species present and in relation to the number of individuals present (Richness Index, Dahlberg and Odum 1970). Another measure of diversity is the distribution of individuals among the species (Evenness Index, Pielou 1969). A fourth measure of diversity is the Shannon Index (Pielou 1966), which considers both the Evenness and Richness components of the community's structure.

In addition to species diversity indices, the abundance and percent composition of each species or taxon is calculated, along with the arithmetic mean, standard deviation, variance, sum, range, and coefficient of variation.

B. Physical and Chemical Data

Water chemistry and physical characteristics are analyzed in replicate. Three basic methods are employed in the analyses: 1) calculation of simple (univariate) statistics, 2) linear correlation between variables two at a time to statistically infer relationships, 3) analyses of variance to statistically examine the average response levels and their effects across the sampling area chosen.

The simple statistics assist in evaluating actual or implied response changes in the aquatic ecosystem. The simple statistics used are primarily measures of central tendency and dispersion. A measure of central tendency is the arithmetic mean, which measures the average value of the sampled characteristic. The standard deviation, variance, and range are measures of dispersion and are used as estimates of spread of the characteristics sampled. The coefficient of variation, expressed as a percentage of the mean, measures the amount of variation in the sample for a given characteristic.

Graphic plots are drawn for each location across time. These three-dimensional plots show time as one dimension and chemical or physical characteristics as the other two dimensions. These plots are drawn to identify possible interactions across time.

A product-moment correlation coefficient is computed for each pair of numeric variables. Its value, along with the probability that the absolute value of the computed correlation coefficient being greater than zero by chance for a specific sample size, is printed [i.e., Prob ($|r|>0|$ rho=0)].

The correlation coefficient measures the degree of association on an absolute scale between -1 and +1 with 0 indicating no statistical association. A positive (negative) value between 0 and +1 (-1) indicates a tendency of one variable to increase (decrease) as the other increases.

The correlation coefficient makes no statement as to the reality or causality of an association. It may verify the existence of a causal association, but is not itself proof of a relationship. The reality of cause and effect can be inferred only from ecological knowledge and an understanding of the dynamics of the ecosystem.

The analyses of variance tables are presented with the summary calculations necessary to statistically determine whether the differences in sample means for the constituents under study are greater than expected by chance. These tables will be constructed after a preliminary examination of the data in order to evaluate and construct hypotheses for testing. Tables will include the degrees of freedom, sum of squares, and mean square for each source of variation in the specified model. Following the analyses of variance, appropriate multiple comparison tests for either equal replicates or unequal replicates will be performed to assess sampling differences

C. Interrelationships

To assess interrelationships between the biological, water chemistry and physical characteristics, three-dimensional plots with sampling period (time) on one axis and a selective list of water chemistry, physical and biological characteristics on the other two dimensions will be constructed. From these plots, statements about trends and synergistic pairs of characteristics will be made. In the future, correlations between the biological and chemistry data will be provided in annual and final reports to assist in interpreting the three-dimensional plots.

2.4.12. References

Methodology

Everhart, W. H. and B. E. May. 1973. Effects of chemical variations in aquatic environments. Vol. 1: biota and chemistry of Piceance Creek. U.S. Environmental Protection Agency, Office of Research and Monitoring Washington, D.C. 117 pp.

USGS. 1971. Water Resources Data for Colorado. Part I. Surface water records. U.S. Geological Survey, U.S. Dept. Int.

USGS. 1972. Water Resources Data for Colorado. Part I. Surface water records. U.S. Geological Survey, U.S. Dept. Int.

USGS. 1973. Water Resources Data for Colorado. Part I. Surface water records. U.S. Geological Survey, U.S. Dept. Int.

Results

American Petroleum Institute (API). Undated. Manual on disposal of refinery wastes. Methods for sampling analysis.

American Public Health Association (APHA). 1971. Standard methods for examination of water and waste-water. 13th ed. APHA, New York.

Environmental Protection Agency (EPA). 1971. Methods for the chemical analysis of water and wastes. Water Quality Control Office, Analytical Quality Control Laboratory. Cincinnati, Ohio.

Jessen, R. and R. Lound. 1962. An evaluation of a survey technique for submerged aquatic plants. Game Investigational Report No. 6. Minesota Dept. of Conservation. Division of Game and Fish. 10 pp.

Mason, W. T., P. A. Lewis, and J. B. Anderson. 1971. Macroinvertebrate collections and water quality monitoring on the Ohio River Basin 1963-1967. Water Qual. Ofc. EPA, Cincinnati, Ohio.

Northern States Power Co. 1974. Environmental Report, Tyrone Energy Park Units 1 and 2.

Patrick, R. and C. W. Reimer. 1966. The diatoms of the United States. Acad. Nat. Sci. Phila. 688 pp.

Tesch, F. W. 1968. Age and growth. pp. 93-123 In: Ricker, W. E. (ed.) Methods for assessment of fish production in fresh waters. IBP Handbook No. 3. Blackwell Scientific Publ., Oxford.

Vollenweider, R. A. (ed.) 1969. A manual on methods for measuring primary production in aquatic environments. IBP Handbook No. 12. Blackwell Scientific Publ., Oxford. 213 pp.

Taxonomic References

PHYTOPLANKTON AND PERIPHYTON

Cleve-Euler, A. 1951. Die diatomeen von Schweden und Finnland. Reprint by Weldon and Wesley, Ltd., New York. 1969.

Drouet, F. 1968. Revision of the classification of the Oscillatoriaceae. Acad. Nat. Sci. Phila. Monogr. 15. 370 pp.

Gojdics, M. 1953. The genus Euglena. Univ. of Wisconsin Press Madison. 268 pp.

Hustedt, F. 1930. Die kieselalgen Deutschlands, Osterreichs und der Schweiz. Reprint by Johnson Reprint Corp., New York, N.Y. 1971. 920 pp.

Patrick, R. and C. W. Reimer. 1966. The diatoms of the United States. Acad. Nat. Sci. Phila. 688 pp.

Prescott, G. W. 1962. Algae of the western Great Lakes area. Wm. C. Brown Company Publishers, Dubuque, Iowa. 977 pp.

Van Huerck H. 1896. A treatise on the Diatomaceae. Reprint by Weldon and Wesley Ltd., and Verlag J. Cramer. 1962. 558 pp.

West, W. and G. S. West. 1908. A monograph of the British Desmidiaceae. Vol. I-V. Ray Society, Reprint by Johnson Reprint Corporation, New York, N.Y. 1971.

ZOOPLANKTON

Bartos, E. 1959. Fauna CSR Nakladatelstvi. Ceskoslovenska Akad. Ved., Praha. 971 pp.

Bick, H. 1972. Ciliated Protozoa. World Health Organization, Geneva. 198 pp.

Bick, H. 1972. Ciliata. In: Die Binnengewasser XXVI. Stuttgart. pp. 31-83.

Brooks, J. L. 1957. Systematics of North American Daphnia. Monogr. Conn. Acad. Arts and Sci. 13: 1-180.

Brooks, J. L. 1959. Cladocera. pp. 587-656 In: Ward, H. B. and G. C. Whipple. 1959. W.T. Edmonson (ed.) Freshwater Biology. Wiley and Sons, New York.

DeFlandre, G. 1959. Rhizopoda and Actinopoda. pp. 232-264. In: Ward, H. B. and G. C. Whipple, 1959. W.T. Edmondson (ed.) Freshwater Biology. Wiley and Sons, New York.

Dobbin, C. N. 1941. Freshwater Ostracoda from Washington and other western localities. Univ. Wash. Publs. Biol. 4: 174-246.

Edmondson, W. T. 1959. Rotifera. pp. 420-494. In: Ward, H. B. and G. C. Whipple, 1959. W.T. Edmondson (ed.) Freshwater Biology. Wiley and Sons, New York.

Frey, D. G. 1958. The taxonomic and phylogenetic significance of the head pores of the Chydoridae (Cladocera). Intern. Rev. 44: 27-50.

Furtos, C. 1933. The Ostracoda of Ohio. Ohio Biol. Survey 5: 411-524.

Goulden, C. E. 1968. The systematics and evolution of the Moinidae. Trans. Amer. Phil. Soc. 58: 1-101.

Grospietsch, T. 1972. Testacea und Heliozoa. In: Die Binnengewasser XXVI. Stuttgart. pp. 1-30.

Harring, H. K. and F. J. Myers. 1922. The rotifer fauna of Wisconsin. Trans. Wisconsin Acad. Sci. 20: 553-662.

Harring, H. K. and F. J. Myers. 1924. The rotifer fauna of Wisconsin, II. A revision of the notommatid rotifers, exclusive of the Dicranophorinae. Trans. Wisconsin Acad. Sci. 21: 415-549.

Harring, H. K. and F. J. Myers. 1926. The rotifer fauna of Wisconsin, III. A revision of the genera Lecane and Monostyla. Trans. Wisconsin Acad. Sci. 22: 315-423.

Harring, H. K. and F. J. Myers. 1928. The rotifer fauna of Wisconsin, IV. The Dicranophorinae. Trans. Wisconsin Acad. Sci. 23: 667-808.

Kudo, R. P. 1971. Protozoology. Chas. C. Thomas Publ. Springfield, Ill. 1174 pp.

Myers, F. J. 1930. The fauna of Wisconsin, V. The genera Euchlanis and Monommata. Trans. Wisconsin Acad. Sci. 25: 353-411.

Noland, L. E. 1959. Ciliophora. pp. 265-297. In: Ward, H. B. and G. C. Whipple, 1959. W. T. Edmondson (ed.) Freshwater Biology. Wiley and Sons, New York.

Pennak, R. W. 1953. Freshwater invertebrates of the United States. Ronald Press, New York.

Ruttner-Kolisko, A. 1972. Rotatoria. In: Die Binnengewasser XXVI. Stuttgart. pp. 99-234.

Tressler, W. L. 1959. Ostracoda. pp. 657-734. In: Ward, H. B. and G. C. Whipple, 1959. W. T. Edmondson (ed.) Freshwater Biology. Wiley and Sons, New York.

Voigt, M. 1956. Rotatoria. Die Radertiere Mitteleuropas, Vol. II. Borntraeger, Berlin.

Wilson, M. S. and H. C. Yeatman. 1959. Free-living Copepoda. pp. 735-861. In: Ward, H. B. and G. C. Whipple, 1959. W. T. Edmondson (ed.) Freshwater Biology. Wiley and Sons, New York.

BENTHOS

Anderson, R. D. 1962. The Dytiscidae (Coleoptera) of Utah: keys, original citations, types and Utah distribution. Great Basin Naturalist 22(1-3_ 54-75.

Beck, W. M. Jr. and E. C. Beck. 1966. Chironomidae (Diptera) of Florida I. Pentaneurini (Tanypodinae) Bull. Fla. State Mus. 10(8): 305-379.

Brinkhurst, R. O. and B. C. M. Jamieson. 1971. Aquatic Oligochaeta of the world. U. of Toronto Press. 860 pp.

Brown, H. P. 1972. Aquatic dryopoid beetles (Coleoptera) of the United States. U.S. EPA Water Pollution Control Research Series. Biota of Freshwater Ecosystems Identification Manual #6.

Edmunds, G. F. Jr. 1948. A new genus of Mayflies fron western North America (Leptophlebiinae). Proc. of Biol. Soc. Washington 61: 141-148.

Flint, O. S., Jr. 1960. Taxonomy and biology of nearctic limnephilid larvae (Trichoptera) with special reference to species in eastern United States. Entomologica America 40: 1-117.

Hamilton, A. L. and O. A. Saether. 1970. Key to the genera of midge larvae. Unpublished. Freshwater Institute, FRBC, Winnepeg, Manitoba.

Johannsen, O. A. 1934. Aquatic Diptera. Cornell Agr. Exp. Sta. Mem. 164: 3-70.

Johannsen, O. A. 1935. Aquatic Diptera. Cornell Agr. Exp. Sta. Mem. 177: 3-62.

Klemm, D. J. 1972. Freshwater leeches (Annelida: Hirudinea) of North America. U.S. EPA Water Pollution Control Research Series, Biota of Freshwater Ecosystems Identification Manual #8.

Musser, R. J. 1962. Dragonfly nymphs of Utah (Odonata: Anisoptera) Univ. Utah Biol. Ser. 12(6): 1-66.

Peterson, B. V. 1960. The Simuliidae (Diptera) of Utah, Part I. Keys, original citations, types and distribution. Great Basin Naturalist. 20(3&4): 81-104.

Ross, H. H. 1944. The Caddis-flies or Trichoptera of Illinois. Bull. Ill. Nat. Hist. Surv. 23(1): 1-326.

Saether, O. A. 1971. Nomenclature and phylogeny of the genus Harnischia (Diptera: Chironomidae) Can. Entomol. 108: 347-362.

Usinger, R. L. 1956. Aquatic insects of California. Univ. Press, Berkley, 508 pp.

Ward, H. B. and G. C. Whipple. 1959. W. T. Edmondson (ed.) Freshwater Biology. Wiley and Sons, New York 1248 pp.

MACROPHYTES

Harrington, H. D. 1964. Manual of the plants of Colorado. Sage Books. The Swallow Press Inc., Chicago. 666 pp.

Matsumura, Y. and H. D. Harrington. 1955. The true aquatic vascular plants of Colorado. Colo. Agr. Exp. Stat., Tech. Bull. 57: 1-130.

FISH

Beckman, W. C. undated. Guide to the fishes of Colorado. Univ. of Colorado Museum, Boulder, Colo. 110 pp.

Ellis, M. M. 1914. Fishes of Colorado. The Univ. of Colorado Studies, Vol. XI. Univ. Colo., Boulder.

Tesch, F. W. 1968. Age and growth. pp. 93-123 In: Ricker, W. E. (ed.) Methods for assessment of fish production in fresh waters. IBP Handbook No. 3, Blackwell Scientific, Oxford. 313 pp.

Statistical Methods

Dahlberg, M. D. and Odum, E. P. 1970. Annual cycles of species occurrence, abundance, and diversity in Georgia estuarine fish populations. Am. Midl. Nat. 83: 382-392.

Pielou, E. C. 1966. Shannon's formula as a measure of specific diversity: its use and misuse. Am. Natur. 100: 463-465.

Pielou, E. C. 1969. An introduction to mathematical ecology. Wiley Interscience. Wiley and Sons, New York, N.Y. 286 pp.